OR 361

DEPARTMENT OF PUBLIC WORKS,
BUREAU OF SURVEYS,
BRIDGE DIVISION.

REPORTS

Commencing 1904

J.W. PHILLIPS.

DAM
OUNSEL
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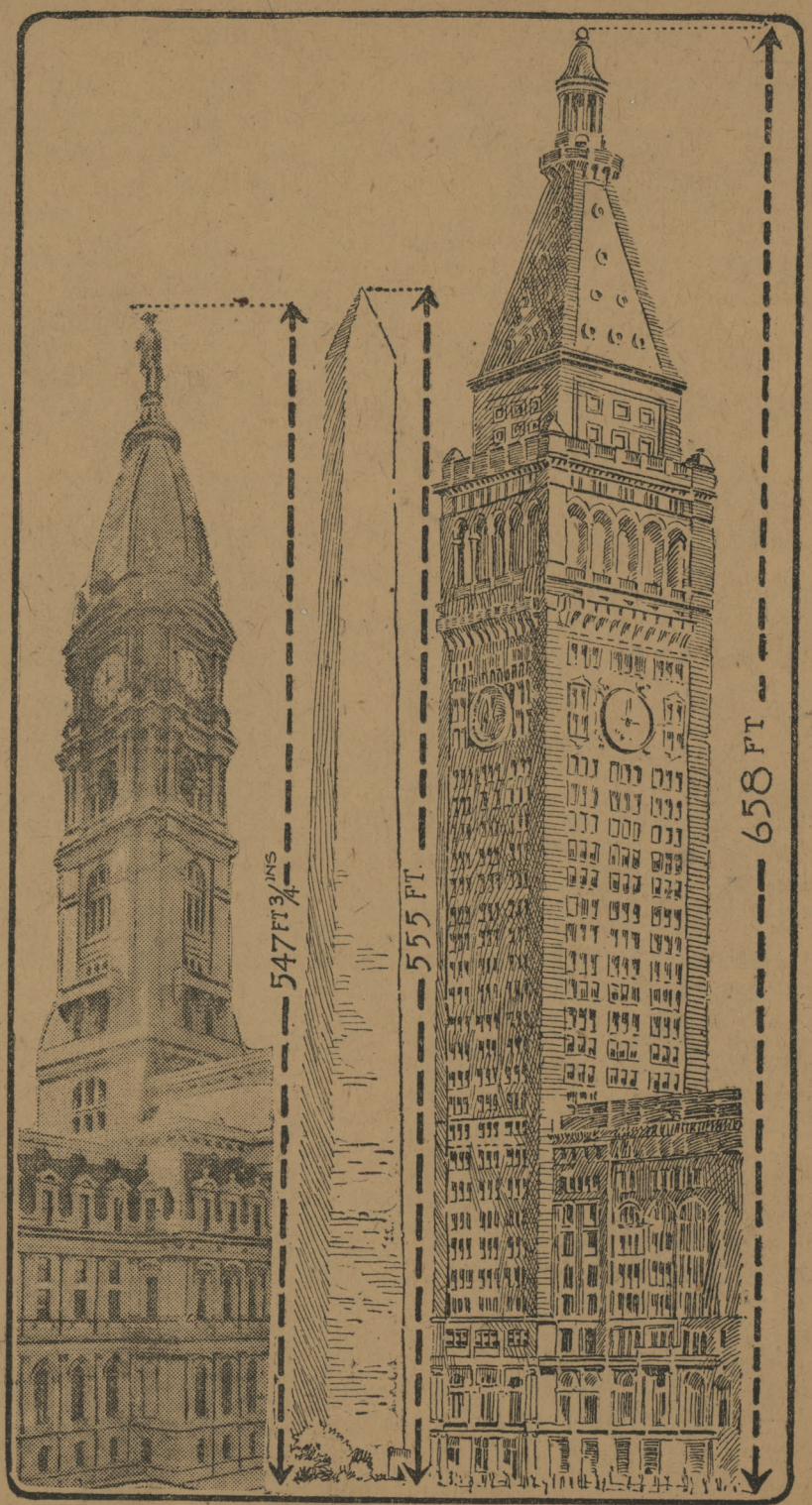

Philadelphia City Hall — Washington Monument — Metropolitan Life Insurance Building

TALLEST BUILDING IN THE WORLD

The Metropolitan Life Building, in New York, which will be built on the site of Dr. Charles Parkhurst's old church, is shown here in contrast with the Philadelphia City Hall. The new building will have a tower 658 feet high, while City Hall is 547 feet high. Likewise it dwarfs the Washington Monument, which it overtops by more than 100 feet. Comprising forty-eight stories, the structure will be the tallest office building in the world, being exceeded in height only by the celebrated Eiffel Tower. The latter is not used for business purposes, and the proposed new Metropolitan edifice is, therefore, absolutely unique in its majestic altitude.

MEN WHO

STEAMSHIPS

HAMBURG-AMERICAN LINE
Twin Screw Passenger Service
PLYMOUTH—CHERBOURG—HAMBURG.
†Patricia .....Jan. 12|Kaiserin (new)..Jan. 26
†Pretoria .....Jan. 19|†Pennsylvania ...Feb. 9
†Omits Cherbourg.

Mediterranean Service
TO GIBRALTAR—NAPLES—GENOA.
Hamburg .....Jan. 10|Romanic .....Mar. 9
*‡Moltke .....Jan. 29|Hamburg .....Mar. 26
Deutschland ...Feb. 4|‡Moltke .....Apr. 23
Hamburg .....Feb. 19|Hamburg .....May 7
*Has Grill Room. †Has Gymnasium.
‡Mediterranean and Orient cruise. 79 days.

Eight Days to Italy
BY THE GREAT FLYER DEUTSCHLAND
From New York Feb. 4, 1907.

WEST INDIES 28 DAYS BY S. S. BLUECHER Jan. 21 and March 5, $150 and up.

TOURIST BUREAU.
R. R. Tickets, hotel accommodations and general information about foreign travel.
Travelers' checks, good all over the world.
1229 Walnut street, Philadelphia, Pa.

NORTH GERMAN LLOYD
Fast Express Service
PLYMOUTH—CHERBOURG—BREMEN.
K.Wm.II,Jan.8, 10 AM|Kaiser, March 5, 10 AM
Kronprinz,Jan.22, noon|K.W.II,Mar.12, 5.30 AM
K.Wm.II,Feb.12, 6 AM|Kronprinz,Mar.26,1 PM
Kronprinz,Feb.26,6 AM|Kaiser, Apr. 2, 10 AM

Twin-Screw Passenger Service
BREMEN DIRECT.
Rhein, Jan. 24, 10 AM|Rhein, Mar. 7, 10 AM
Yorck, Jan. 31, 10 AM|Hannover,Mar.14,10 AM
Cassel, Feb. 14, 10 AM|Breslau,Mar. 21, 10 AM
Main, Feb. 21, 10 AM|Cassel, Mar. 28, 10 AM

Mediterranean Service
GIBRALTAR—NAPLES—GENOA.
K.Albert,Jan.12, 11 AM|K. Luise, Feb. 9, 11 AM
P. Irene, Jan.19, 11 AM|K.Albert,Feb.23, 11 AM
†Kaiser, Jan.26, 11 AM|*Friedrich,Mar.2, 11 AM
*Neckar, Feb.2, 11 AM|P. Irene, Mar. 9, 11 AM
†Omits Gibraltar. *Omits Genoa.
From Bremen Piers, 3 and 4th sts., Hoboken.
N. G. LLOYD EXPRESS SERVICE.
North German Lloyd Travelers' Checks Good All Over the World.
OELRICHS & CO., 5 Broadway, New York.
Louis H. Meyer, 1016 Walnut st., Phila.

Boston and Philadelphia Steamship Company's Lines
Tri-Weekly Direct for Boston
Sailing from Pier 20,South Delaware avenue, Monday,Wednesday and Friday at 3 P. M.
From Boston, Tuesday, Thursday and Saturday at 3 P. M.
PASSAGE TO BOSTON, $10; round trip, $18.
Meals and berth included.

Tri-Weekly for Providence, Touching at Fall River
Sailing from Pier 18,South Delaware avenue, Monday,Wednesday and Friday at 3 P. M.
From Providence, Tuesday, Thursday and Saturday at 3 P. M., touching at Fall River.
Through bills of lading issued and freight forwarded to interior New England points.
W. C. NORWOOD, Agent,
Delaware avenue and Pine street. Philad'a.

AMERICAN LINE
PHILADELPHIA—LIVERPOOL.
Noordland.....Jan. 5|Merion .....Jan. 19

ATLANTIC TRANSPORT LINE
PHILADELPHIA—LONDON.
Mackinaw.....Jan. 6|Montana .....Jan. 19

HAMBURG-AMERICAN LINE
PHILADELPHIA—HAMBURG.
Armenia.....Jan. 12|Acilia .....Jan. 24

RED STAR LINE
PHILADELPHIA—ANTWERP.
Manitou .....Jan. 4|Menominee .....Jan. 18
Freight Office and Central Office,
BOURSE BUILDING.

F-R-E-N-C-H L-I-N-E
Compagnie Generale Transatlantique
Direct Line to Havre—Paris (France).
Sailing every Thursday at 10 A. M.
From Pier No. 42, North river, foot Morton street, New York.
La Bretagne....Jan. 10|*La Lorraine....Jan. 31
*La Savoie.....Jan. 17|La Bretagne....Feb. 7
*La Touraine...Jan. 24|*La Savoie.....Feb. 14
*Twin-screw steamer.
General Agency, 32 Broadway, New York.
RAYMON[illegible] & WHITCOMB COMPANY,
1005 Ches[illegible]eet, Philadelphia, Pa.

[illegible]AN LINE.
Plymout[illegible]burg, Southampton.
From New [illegible]urday, at 9.30 A. M.
New Yo[illegible] St. Louis.....Jan. 19
[illegible]iverpool (Pier 53).
[illegible] 10 A. M.

HORSES

1837 Market Street
PENNSYLVANIA BAGGAGE AND DELIVERY COMPANY
Holiday Rush is Over

Will sell 90 head of horses and mares, 50 head of mules, worked single and double in our business; these mules and horses are young, good weight and size, and are reliable in every particular; would suit any general business purpose, or would make elegant farm teams; prices ranging from $20 up; all must be sold. Also several extra fine driving horses and mares, long tails and manes; good condition; fast travelers; safe for any one to drive; have been used by our city solicitors and agents, together with their buggies, harness, blankets, robes, etc.; will be sold at a decided bargain; no reasonable offer will be refused. Also a lot of 6-spring wagons, double and single harness; all in good order; will be sold cheap. Each horse or mule must be as represented after a trial of 10 days or money refunded. Call at main office.

1837 Market Street
Philadelphia Teaming and Baggage Express

HOLIDAY RUSH IS OVER.
$25 TO $75—MUST SELL, AS WE ARE OVERSTOCKED. 50 HEAD HORSES AND MULES, BIG, YOUNG, STRONG STOCK. WE USE OVER 200 HEAD OF HORSES AND MULES.

Office and Stables
1527 Filbert Street
OPPOSITE PENNSYLVANIA DEPOT.

FOR SALE—A STYLISH SADDLE AND harness horse, 6 years old, 15¾ hands high; extra fast traveler; accustomed to city sights; also rubber-tire runabout, Charles S. Caffrey rubber-tire buggy, miniature rubber-tire brougham, made by Brewster & Co., New York; light rubber-tire cutunder, also speeding sleigh, light and heavy harness, gentleman's riding saddle and bridle, elegant plush and fur robes; will be sold at a great sacrifice to effect an immediate sale. Call 1811 Brandywine street, near 18th and Green streets. P. S.—Will separate, if desired.

FOR SALE—TWO PAIRS EXTRA WORK horses; weight, 1400 pounds each; will sell separate; two Watson wagons and double harness; also one good road horse; 1000 pounds; cheap. Call at residence, 317 North 41st street.

BUSINESS OPPORTUNITIES

WE SELL
BUSINESSES
AND
BUSINESS PLACES
OF EVERY DESCRIPTION.
LIST YOURS WITH US.
NO CHARGE UNLESS SOLD.
SEE OUR LISTS.
IF YOU WANT TO BUY.
MARIS, 618 REAL ESTATE TRUST BLDG.

FOR SALE — A COMPLETELY EQUIPPED brass foundry and finishing shop; doing good business; $8000 to $10,000 required; reason for selling other business; if you don't mean business, please do not answer; located in a good business town, near Philadelphia. D 242, North American.

$6000 WILL BUY STOCK AND FIXTURES OF well-established men's furnishing business in thriving town of 11,000 population; located on prominent street; doing a profitable cash business; excellent reasons for selling. Address "R. O. Y.," K 235, North American.

FOR SALE—LAUNDRY ROUTE, TWO horses and two wagons; established 14 years; $150 worth work per week; summer, $250. W. W. Gault, Wayne, Pa.

SACRIFICE SALE — VALUABLE ROLLER flour mill property; water power; in Chester county. Address K 39, North American.

NEWSPAPER ROUTE WANTED; OUT OF city preferred; state particulars. Address D 198, North American.

$550—APARTMENT HOUSE; 16 ROOMS; LOW rent; elegant neighborhood; central; all rooms filled. D 18, North American.

FIRST-CLASS ESTABLISHED BUSINESS, having monopoly, wants party invest equal amount; $2500 required. D 52, North American.

CHEAP, AT INVENTORY, GROCERY AND meat store; in Frankford; no cut-price opposition. Address K 71, North American.

CHEMICAL ANALYSIS OF MINERALS,ORE, coal, etc.; prompt attention given mail samples. Analyst Office, Mount Holly, N. J.

PARTY WITH $5000 TO TAKE HALF INTEREST in automobile agency in Philadelphia. D 183, North American.

WANTED TO RENT, A MEAT STO[illegible] dress K 17[illegible] North Am[illegible]

Mary A. Shal[illegible] invited to ser[illegible] 4708 Penn st. [illegible]vate.
CURLEY. [illegible] of late John a[illegible] and friends in[illegible] M., residence [illegible] 856 N. 47th st. [illegible] of Sorrows' Ch[illegible] Cross.
CURRY.—1s[illegible] GEORGE W. C[illegible] 68. Relatives a[illegible] Sat., 3 P. M., p[illegible] bert st. Interme[illegible]
DAVIS.—2d [illegible] aged 64. Relativ[illegible] ices, Sat., 1 P. [illegible] law, Charles E. [illegible] ment private.
DEROSA.— [illegible] wife of Salvad[illegible] friends invited t[illegible] band's residence [illegible] quiem mass Ch[illegible] Counsel. To pro[illegible]
DOUGHER[illegible] of late Charles [illegible] ley, aged 47. R[illegible] graphical Union, [illegible] East End Mutua[illegible] employes Public [illegible] Sat., 2 P. M., [illegible] (27th and Brown [illegible]
DOUGHER[illegible] DOUGHERTY, [illegible] Dougherty, aged [illegible] Mother of Sorrow[illegible] invited to funeral [illegible] residence, 833 Jun[illegible] of Our Mother of [illegible] Cathedral.
DREHR.—2d [illegible] late Michael and [illegible] and friends invit[illegible] M., residence, 159[illegible] private.
DUNGAN.—4[illegible] GAN, aged 52. R[illegible] to funeral, Mon., [illegible] 621 N. Hancock s[illegible] Hill.
DUNN.—3d ins[illegible] John Dunn. Relat[illegible] funeral, Mon., 8.30 [illegible] Dunn, 4412 Leiper s[illegible] St. Joachim's Ch[illegible] nic's.
ELLIOTT.—4[illegible] John Elliott, aged [illegible] invited to funeral, [illegible] 713 Gray's Ferry [illegible]
FASY.—3d inst. [illegible] Edwd. J. Fasy, [illegible] Margaret Brogan. [illegible] vited to funeral, [illegible] brother, Jas. Broga[illegible] Our Mother of Sor[illegible] terment New Cathe[illegible]
FEERICK. — [illegible] FEERICK, widow [illegible] merly of Westpo[illegible] Relatives and fri[illegible] Heart of St. Ann[illegible] neral, Sat., 8.30 [illegible] John Feerick, 243[illegible] requiem mass St. [illegible] Interment Holy C[illegible]
FENIMORE.— [illegible] FENIMORE, aged [illegible] invited to funeral, [illegible] er, Seybert D. Fenim[illegible] road, Folcroft. D[illegible] private. Mt. Peace.
GALLAGHE[illegible] widow of Philip [illegible] Margaret and late [illegible] friends invited to [illegible] 2403 Lombard st. [illegible] Patrick's Church. [illegible]
GAUL.—4th inst. [illegible] Sallie A. Newton G[illegible] invited to services, [illegible] Tues., 2 P. M. Re[illegible] 8 P. M. Interment [illegible]
GEISENBER[illegible] pendicitis. CHARLE[illegible] tha Geisenberger, of [illegible] Relatives and friend[illegible] 1.30 P. M., parlors [illegible] 6th and Diamond st[illegible]
GRAHAM.—H[illegible] and Laura Grahan[illegible] and Eliza Graham [illegible] glemyer. Relatives [illegible] ices, parents' reside[illegible] 2 P. M. Interment [illegible]
HALL.—3d inst. [illegible] 64. Relatives and [illegible] Mon., 1 P. M., res[illegible] Frazier sts., betwee[illegible] ment private. Ceda[illegible] viewed Sun., after [illegible]
HAMSCHER. [illegible] HAMSCHER, husba[illegible] aged 65. Relatives a[illegible] bers of Resolution [illegible] and Volunteer Firem[illegible] invited to funeral, [illegible] 2703 Pratt st., Brid[illegible] wood, K. of P. [illegible]
HANN[illegible]

Proposals received, March 21, 1901.

For Bridges

Schedule, "C"

NAME	ADDRESS	57th Street Bridge: For the entire work complete, including abutments, superstructure and all appurtenances, as shown and described, the sum of	Time	For additional foundation concrete including excavations and all appurtenances per cub. yard the sum of	71st Street Bridge: For the entire work complete, including masonry, superstructure and all appurtenances, as shown and described, the sum of	Time	For additional rubble foundation masonry, including excavation and all appurtenances per cub. yard, the sum of	Olney Ave. Bridge: For the entire work of constructing the two bridges, including abutments, superstructure painting and all appurtenances, as shown and described, the sum of	Time	For additional rubble foundation masonry including excavation and all appurtenances per cub. yd. the sum of	Collector Ring: For furnishing one collector ring complete delivered at the new Gray's Ferry Bridge the sum of	Time	Tool House: For building the Tool House complete on the present wooden fender of the new Gray's Ferry Bridge including the furnishing of all materials and labor the sum of	Time	Signal Whistle: For furnishing all the apparatus, materials and labor to equip complete and ready for use, the air signal whistle, for the New Gray's Ferry Bridge, the sum of	Time	Electric Indicator: For furnishing all the apparatus, materials, appurtenances and labor required to equip complete and ready for use, the Electric indicator for the new Gray's Ferry Bridge the sum of	Time
		$		$	$		$												
P. McManus	18 South Broad St. Philada.	27056.00	6 mos.	6.20	19235.00	4 mos.	6.45												
Ryan & Kelley	8 " " " "	29700.00	5 "	7.00				46800.00	6 mos.	6.00									
Harmer & Quinn	308 Fidelity Building "	33933.00	4 "	7.00	21927.00	4 "	6.00	52393.00	4 "	7.00									
American Artificial Stone Pav. & Const. Co.	211 South 9th St. "	27800.00	6 "	5.50															
David Peoples	2649 Thompson St. "				19900.00	6 "	5.00												
M. J. B. McHugh	607 Witherspoon Bldg. "				19800.00	4 "	6.00												
Henderson & Co. Ltd.	1215 Filbert St. "	27950.00	6 "	7.50	15590.00	4 "	7.50	43946.00	6 "	7.50									
Philadelphia Construction Co	515 Girard Bldg. "	27985.00	6 "	6.00				48700.00	6 "	5.50									
McGaw & Gray	West End Trust Co. Bldg. "	29900.00	5 "	7.00															
Sullivan & Reilly	14 South Broad St. "																		
Sparks & Evans	" " " " "				17600.00	3½ "	5.50												
Wm. H. Millard	1103 & 1104 Stephen Girard Bldg. "																		
Thos. F. Reilly	1210 Harrison Bldg. "				19297.40	3 "	5.90												
Cort Construction Co	1222 Belmont Ave.. "	30274.00		5.75	17510.00		5.75	50277.00		5.75									
Charles D. Land	2332 N. Broad St. "	33000.00	3 "	8.50				47000.00	6 "	6.50									
Michael O'Rourke	2838 Frankford Ave. "																		
P. R. Foley & Co.	Harrison Bldg. "												$470.00	30 days					
J. F. Buchanan & Co	40 N. 4th St. "																$160.00	30 days	
Sharpless & Fennimore	1117 South 47th St. "												480.00	20 days					
Joseph F. Myers	516 Willow Street "												446.00	18 days					
General Electric Co..	214 South 11th Street "										$140.00								

Mr. Phillips

DEPARTMENT OF PUBLIC WORKS.

BUREAU OF HIGHWAYS.

Phila. Jan. 14th, 1904.

Subject: Inspection of Bridges.

Mr. Peter E. Costello,

Director, Department of Public Works.

Dear Sir:

There are a large number of bridges in the City which appear to be in bad condition, requiring more or less extensive repairs.

We have but two men in this Bureau whose duty it is to make inspections, prepare specifications and surpervise said repairs, to wit- the Supt. of Bridges and his assistant.

I would respectfully suggest, if it meets with your approval, that a competent engineer be detailed from the Bureau of Surveys to assist the Supt, of Bridges in this Bureau in making an inspection of said bridges with a view to determining exactly what should be done, and make a fairly accurate estimate of the cost of placing bridges which require it in good condition.

If the Supt. of Bridges has this assistance it will greatly facilitate the much needed inspection of a large number of our bridges.

Will you kindly advise me.

Yours truly,

Wm. H. Brooks,

Chief, Bureau of Highways.

COPY.

Fr. Mr. Phillips

BUREAU OF SURVEYS * RECEIVED JAN 23 1904 PHILADELPHIA * GEO. S. WEBSTER, CHIEF ENG'R *

BUREAU OF SURVEYS * RECEIVED JAN 28 1904 PHILADELPHIA * GEO. S. WEBSTER, CHIEF ENG'R *

DEPARTMENT OF PUBLIC WORKS

Philada. Jan. 22nd, 1904.

Bureau, - Surveys.

Subject: Examination of Bridges.

Mr. G. S. Webster,

Chief Engineer, Bureau of Surveys.

Dear Sir:

Yours of the 20th inst. in which you state that you have detailed Mr. Jas. W. Phillips, Chief Draughtsman of the Bridge Division in your Bureau, to assist the Supt, of Bridges in the Bureau of Highways in making examination of bridges, received.

Mr. Cofrode, Supt. of Bridges, reports that he will be ready to begin the examination of Monday, Feb. 1st, 1904.

Will you please instruct Mr. Phillips to report to Mr. Cofrode on that date for instructions; if the weather is suitable for conducting the work.

Yours truly,

PETER E. COSTELLO,

Director.

COPY.

Philadelphia, March 12th, 1904.

REPORT ON CONDITION OF CITY BRIDGES.

I. GREEN LANE OVER SCHUYLKILL RIVER.

The superstructure of this bridge is in good condition. Some repairs are needed to be made to masonry of west pier, the extent of which can be accurately determined after the water recedes.

II. CITY AVENUE OVER SCHUYLKILL RIVER.

The hand-railings are badly corroded, about 50% will require renewal, the remainder can be repaired.

Drain outlets should have conductor pipes attached, to carry surface drainage clear of metal work below the roadway.

The roller shoes of end span have moved, and are in contact with back wall of abutment; masonry should be dressed sufficiently to relieve the pressure.

Slight repairs are needed to minor parts of metal work, and sidewalk on west approach.

The entire superstructure needs to be painted.

III. FALLS BRIDGE OVER SCHUYLKILL RIVER.

This bridge is in a generally good condition. Some slight repairs to parts of the railings along sidewalks are needed and metal work should be painted.

IV. GIRARD AVENUE OVER SCHUYLKILL RIVER.

The metal work of trusses is in good condition except some corrosion of floor plates, caused by leakage from the roadway and sidewalks; the leakage occurs along curb and gutter lines, and on

No. 2.

sidewalks, and at electric light poles, and is due to the opening of joints between the granite curb and gutter stones and broken marble slabs in sidewalk pavements, and crevices that occur around the electric light poles, which are located in the middle of the roadway. The leakage can be remedied effectively by removing the granite curb and gutter stones, and the marble slabs, many of which are broken, from the sidewalks, and replacing with a granolithic sidewalk, curb and gutter.

The electric light poles should be removed and placed along the sides of the bridge. The cast iron ornamental washers at the intersection of diagonal members are rusting and causing corrosion of the diagonal bars, and should be removed. Many sections of the cast iron ornamental facia or border under cornice are broken and becoming detached, these need to be repaired and securely fastended or entirely removed, as in their present condition they are liable to fall, and are a menace to the river travel. The cap courses of pier masonry need to be thoroughly grouted and joints cleaned and pointed to prevent water finding its way into the interior body of piers. Some repairs are needed to be made to the compression struts in lower cords of the bridge and to the roller beds under end columns. The entire structure of metal work and the watch box, should be cleaned and painted.

V. SPRING GARDEN STREET OVER SCHUYLKILL RIVER.

This bridge is in a very impaired condition. The section extending from the east side of 30th Street to the new plate girder spans at the west end of the bridge is so badly corroded, and so weaked and reduced in its sectional areas that it cannot be substant ally repaired, and needs to be replaced with an entire new superstructure; the cost of replacing this portion will exceed One hundred thousand dollars, and can only be accurately estimated when plans have been prepared. The metal work of the floor system of the Colonnade extending from 30th Street eastward to the river span- the upper deck of the river span- and the colonnade from the east end of river span to the east abutment wall needs to be strengthened and partially renewed. The cross girders and brackets, the main girders in the colonnades can be strengthened by rivetting reenforcing plates, and stiffening bars to the impaired parts, the stringer and buckle plates carrying the floor will generally need to be replaced with new metal. The heavy cast iron railings or balustrades on the side walls on the upper and lower decks of the river span and on the colonnades are corroded, broken and falling to pieces, these should be entirely removed and dispensed with, they can be replaced with substantial wrought iron railing, and a reduction in dead weight of about five hundred pounds per linear foot of bridge be effected thereby.

A further material reduction in dead weight can be obtained by replacing the heavy flagstone sidewalks with a granolithic pavement, and thereby more effectively prevent surface water from leaking through to the metal work. After these repairs have been made

No. 3.

the metal work should be thoroughly cleaned and painted.

VI. MARKET STREET BRIDGE OVER SCHUYLKILL RIVER.

The railings along the footwalks are in a dilapidated condition; plans and specifications for new railings have been prepared. The plate girder span at west end of bridge is becoming corroded from the gases from the locomotives of the P. R. R. which pass under it. This can be relieved by constructing a wooden sheathing over the tracks. Some slight repairs to the minor parts of the trusses and floor plates are needed, and the metal work of the entire structure needs to be cleaned thoroughly and painted.

VII. CHESTNUT STREET BRIDGE OVER SCHUYLKILL RIVER.

The paving on driveway is in bad condition and needs a thorough overhauling. The general condition of the metal work is good. Three of the spandrel columns on cast iron arch ribs are cracked and need banding to prevent failure. Some repairs are needed to the bracing members of the cast iron arches and a number of the pieces of cast iron cornices need to be fastened more securely to prevent them from becoming detached and falling into the river. Several sections of the cast iron fencings along footwalks on the approaches are broken and should be replaced.

Some corrosion has occurred due to leakage of water through bad joints in paving. The iron fences on approaches and metal work of the bridge below the roadway need to be painted; and the walls carrying the arches of the approaches need to be painted.

VIII. WALNUT STREET BRIDGE OVER SCHUYLKILL RIVER.

The metal work of main structure and in viaduct columns and girders are generally in good condition. Expansion joints and plates on the deck of the bridge need to be cleaned out- drip pans are needed for several of these joints,- the leakage at these points and along the track rail lines causes a rusting of metal work,- a number of the leveling plates under floor stringers have become loose and moved out of place, some partially and others entirely, so that the stringer bearing is destroyed in several places, these need to be replaced and securely fastened.

The hand rails along footwalk are corroded, and a large part of railing cap needs to be replaced with new metal. Anchor bolts in bases of columns at east end of bridge are loose and corroded and need to be replaced with new ones which should be well grouted into masonry. Some repairs are needed to be made to watch-

No. 4.

box at west end of bridge, the walls of building have cracked badly from the settlement. With these repairs being made the bridge should be painted.

IX. SOUTH STREET OVER SCHUYLKILL RIVER.

The wheels, track and rack under the draw are in a corroded, broken and irregular condition and need to be replaced; a new set of wheels, a new track and rack for turning gear should be placed as soon as possible, as the draw is liable to become inoperative by reason of the worn-out condition of the turning gear.

The plate girder viaduct is in a generally good condition Some repairs are needed to the minor parts of the pony truss spans over railroad at west end of bridge. This section of the bridge is badly rusted, the western plate girder span is over the railroad tracks, and is becoming corroded, a smoke sheathing constructed of wood over the tracks that are under this section would be a valuable device to prevent the gases and fumes from working injury to the metal work.

The fender needs to be repaired. A part of the pile work and all the sheathing is decayed and should be renewed. The cap courses of the stone cut-water, ends of fenders, should be clamped and masonry pointed, all of the metal work should be cleaned and painted.

X. GRAY'S FERRY BRIDGE OVER SCHUYLKILL RIVER.

The railings and girder spans over railroad tracks are badly in need of paint; the wooden smoke protection shields over railroad tracks need some repairs and painting, some repairs to expansion plates and bolts are needed and expansion joints require overhauling and cleaning, repairs to track connections between the draw and fixed spans are being made by the Philadelphia Rapid Transit Company. Additional tracks have been laid by the railroad company under ~~authority~~ the west approach span, and a wooden shield should be placed under these girders, to protect the metal work from smoke and gases from locomotives. The general condition of the bridge is good.

XI. PENROSE FERRY BRIDGE OVER SCHUYLKILL RIVER.

The bridge is generally in good condition. Some repairs are needed to be made to the supports of the wooden approaches and on the end rests for draw when opened. A substantial bearing should

No. 5.

be placed to securely hold the structure against heavy winds.

XII. BELMONT AND GIRARD AVENUE OVER P. R. R.

This bridge is in a badly impaired condition, the buckled plates and iron beams supporting them are so eaten by rust, as to be unsafe. The plates in many instances are reduced to more shells, and broken. The iron beams that carry the floor plates are so much decayed in sections that the deflection now exceeds the limit of safety, in many cases this deflection is as much as three inches, and the elastic value of the metal remaining in the beam has been entirely eliminated and destroyed; in my judgment this structure is practically impaired to destruction and needs to be entirely replaced with a new superstructure. I respectfully recommend that it be referred to the Bureau of Surveys for reconstruction. It is beyond being permanently repaired.

XIII. FORTIETH STREET BRIDGE OVER P. R. R.

The cross girders carrying the floor of this bridge are badly corroded and need to be reinforced in the flanges and web members, the anchorage bolts at one corner have broken and must be repaired as a perceptible deflection occurs when heavy loads pass over the bridge, -the remaining anchorages need to be cleaned of dirt and rust, and painted. The Traction Company contemplate replacing their rails on the bridge and it is respectfully recommended that the repairs to this structure be made coincident with the renewal of the tracks. When repairs have been made the bridge should be painted.

XIV. THIRTY-FOURTH STREET BRIDGE OVER P. R. R.

The bridge is rusted and needs to have the metal work cleaned and painted. The easterly span should have a wooden smoke protection shield placed under it, as the railroad tracks have been raised under this span, and the locomotive stacks come in close proximity to the metal work.

XV. BROAD & LEHIGH AVENUE OVER P. & R. R. R.

This bridge is badly in need of repairs to metal work, sheathing and painting. Plans and specifications, and proposals for doing the work are on file in the Bureau of Highways.

No. 6.

XVI. BUSTLETON PIKE OVER PENNYPACK CREEK.

The retaining and parapet walls are in a broken and falling condition. Plans and specifications for repairs needed have been prepared and are on file.

XVII. BUSTLETON PIKE OVER POQUESSING CREEK.

This bridge is in a dilapidated condition; it is stone arch of about 18 feet span, the arch, abutments and retaining walls are broken and crumbling. The entire structure needs to be rebuilt.

XVIII. ACADAMY ROAD OVER BYBERRY CREEK.

Plans, specifications and proposals for constructing a concrete arch bridge in place of the old stone structure are on file in the Bureau of Highways. The work is urgently needed, the bridge is in a dilapidated and dangerous condition, and liable to collapse at any time.

XIX. WELSH ROAD OVER BRANCH OF PENNYPACK CREEK.

This is a stone arch structure; the approach is a long embankment sustained by masonry retaining walls, the walls are broken and crumbling in many places and need to be rebuilt, and this arch masonry repaired and pointed.

XX. RHAWN STREET OVER PENNYPACK CREEK.

The approaches to these two bridges require immediate attention, the embankments immediately adjoining the east end of the main structure are badly washed, and drain troughs are almost wholly destroyed; the approach should be repaired and drain troughs constructed and the slopes of embankment protected by riprapping with stone. The timber and metal work in the bridge needs to be painted; the bridge was constructed about 4 years ago with planed lumber, and has never been painted. The life of the structure will be prolonged materially by giving the wood and metal work a good painting. Some slight repairs are needed to the planking on driveway.

No. 7.

NOTE.

The new section of Spring Garden Street Bridge and the sections about to be rebuilt will be about 60 feet in width, the old bridge is 50 feet wide. It may be deemed advisable in making repairs to colonnades and river span to increase the width of the upper deck of the river span and on colonnades to 60 feet, by which the cost of repairs will be increased. The amount of this increased cost is given at the end of the estimate of costs of all the structures referred to in this report, and is hereto appended.

Respectfully Submitted,

JOS. H. COFRODE,

Sup't Bridges.

Philadelphia, March 15th, 1904.

The estimated cost of making the repairs to the bridges enumerated in the foregoing report, is as follows, approximately:-

1. GREEN LANE BRIDGE.		
For repairs to masonry,	$1500.	$1500.00
2. CITY AVENUE OVER SCHUYLKILL RIVER.		
For repairing metal work sidewalks,	2500.	
For painting,	1200.	3700.00
3. FALLS BRIDGE OVER SCHUYLKILL RIVER.		
For repairs to railings,	250.	
For painting,	3500.	3750.00
4. GIRARD AVENUE OVER SCHUYLKILL RIVER.		
For repairs to metal work,	3500.	
For repairs to pavements and curb,	15000.	
For painting,	5000.	23500.00
5. SPRING GARDEN STREER OVER SCHUYLKILL RIVER.		
For repairing metal work, and removal of pavements,	37500.	
For painting,	4500.	42000.00
6. MARKET STREET OVER SCHUYLKILLnRIVER.		
For renewal of railings and repair to metal work of parts of bridge,	10000.	
For painting,	3500.	13500.00
		$ 87950.00

FORWARD

	BROUGHT FORWARD,		$ 87950.00
7.	CHESTNUT STREET OVER SCHUYLKILL RIVER.		
	For repairing metal work and point-in masonry,	$ 4000.	
	For painting,	3500.	7500.00
	painting		
8.	WALNUT STREET OVER SCHUYLKILL RIVER.		
	For repairs to metal work and railings,	4500.	
	For painting,	7500.	12000.00
9.	SOUTH STREET OVER SCHUYLKILL RIVER.		
	For repairs to draw machinery and	5000.	
	other metal parts of bridge,	2500.	
	For renewal of fenders and repairs to masonry,	6500.	
	For painting,	3500.	17500.00
10.	GRAY'S FERRY OVER SCHUYLKILL RIVER.		
	For repairing minor metal parts and wooden sheathing,	2500.	
	For painting corroded parts,	3500.	6000.00
11.	PENROSE FERRY OVER SCHUYLKILL RIVER.		
	For repairs to wood work in approaches and draw rests,	3500.	3500.00
12.	BELMONT AND GIRARD AVENUE OVER P. R. R.		
	Referred to Bureau of Surveys.		
	FORWARD,		$134,450.00

BROUGHT FORWARD		$ 134,450.00
13. FORTIETH STREET OVER P. R. R.		
For repairs to metal work in floor system and anchorages,	$ 7500.	
For painting,	1000.	8500.00
14. THIRTY-FOURTH STREET OVER P. R. R.		
For wooden protection sheathing,	1250.	
For painting,	1000.	2250.00
15. BROAD STREET OVER P. & R. R. R.		
For repairs to metal work sheathing and painting,	12000.	12000.00
16. BUSTLETON PIKE OVER PENNYPACK CREEK.		
For reconstruction of walls and parapets,	12500.	12500.00
17. BUSTLETON PIKE OVER POQUESSING CREEK.		
For reconstruction of entire structure,	3600.	3600.00
18. ACADAMY ROAD OVER BYBERRY CREEK.		
For reconstructing with concrete arch including approaches,	8000.	8000.00
19. WELSH ROAD OVER BRANCH OF PENNYPACK CREEK.		
For reconstructing retaining walls and repairs to stone arch,	6000.	6000.00
FORWARD		$137,300.00

BROUGHT FORWARD		$ 187,300.00

20. RHAWN STREET OVER PENNYPACK CREEK.

For repairs to approaches, drains and repairs to woodwork,	$ 3000.	
For painting entire structure,	4000.	7000.00

NOTE.

For increasing width of Spring Garden Street bridge as per reference in footnote of report,	35000.00
Estimated total cost,	$ 229,300.00

Respectfully submitted,

JOS. H. COFRODE,

Sup't Bridges.

American Pressed Steel Co.

Arcade Building,
Philadelphia

ALL AGREEMENTS SUBJECT TO DELAYS OCCASIONED BY STRIKES, ACCIDENTS OR OTHER CAUSES UNAVOIDABLE OR BEYOND OUR CONTROL.
ALL QUOTATIONS SUBJECT TO CHANGE WITHOUT NOTICE

January 27, 1904.

Mr. James W. Phillips, Chief Draughtsman,
Department of Public Works,
412 City Hall,
Philadelphia.

Dear Sir:

We have your favor of the 27th and informed the bearer of your letter that we are having catalogues printed at the present time and as soon as we receive same will at once forward you a copy.

Yours truly,

R.

AMERICAN PRESSED STEEL CO.

J. A. Bailey

HENRY S. JACOBY,
PROFESSOR OF
BRIDGE ENGINEERING

COLLEGE OF CIVIL ENGINEERING
CORNELL UNIVERSITY

7 RESERVOIR AVE., ITHACA, N. Y., September 3, 1906

Mr. James Phillips

Philadelphia, Pa.

My dear Sir:-

In a proposed revision of our Roofs & Bridges, Part Four, I wish to insert tables of the metallic arched bridges of America. I find that I do not have the correct general dimensions of the Chestnut St. bridge. See enclosed slips. The span should be given center to center of bearings on the axis of the rib. The year asked for is the year when the bridge was completed.

I should also like to insert a half tone picture of this bridge, and wish to inquire whether you have a negative from which you could furnish an unmounted print for this purpose.

Very truly yours,

Henry S. Jacoby

Ans. Sept 6 1906
2 Prints

HENRY S. JACOBY,
PROFESSOR OF
BRIDGE ENGINEERING

COLLEGE OF CIVIL ENGINEERING
CORNELL UNIVERSITY

7 RESERVOIR AVE., ITHACA, N. Y., Sept. 13, 1906

Mr. Jos. W. Phillips

Phila., Pa.

Dear Sir:-

Pardon my delay in acknowledging your kindness in sending the information asked concerning the Chestnut St. Bridge and photograph of the same.

The photograph shows the details of the structure very clearly, and I only regret that the foreground is entirely filled up with large blocks of stone. I assume, therefore, that you have no photograph which is free from this objection.

Of course, you appreciate that in a text book it is desirable to have an illustration that makes a good appearance as well as to show the particular details desired.

Thaanking you again for your kindness, I remain,

Very truly yours,

Henry S. Jacoby

HENRY S. JACOBY,
PROFESSOR OF
BRIDGE ENGINEERING

COLLEGE OF CIVIL ENGINEERING
CORNELL UNIVERSITY

7 RESERVOIR AVE., ITHACA, N. Y., Nov. 7, 196

Mr. Joseph W. Phillips

Phila., Pa.

Dear Sir:-

I am at work on the revision of our Roofs and Bridges Part Four, and find a memorandum to the effect that it was proposed a few years ago to build a rolling draw bridge over the Schuykill River at Passyunk Avenue. Is that project going forward, and if so is it near enough completion that it might be announced in a text-book to be issued shortly ? If so will you kindly give me a copy of the skeleton diagram, the span center to center of supports, and a few other general dimensions ? Does it roll back along its own longitudinal axis, or diagonally like the retractile draws of Boston?

Thanking you for your kindness, I remain,

Very truly yours,

Henry S. Jacoby

Feb 25th

4

Preliminary Report
Inspection of Bridges
Mr Jas. E. Cofrode
Chief Bridge
Bureau of Highways.

Dear Sir;

I herebe submit to you my preliminary report on the inspection of bridges, so far as the work has progressed to date.

Owing to the extreme severe cold weather for the past two weeks the work has not progressed very rapidly.

On Feb 8th and 9th with your asst. I inspected the following bridges;

Green Lane over the Schuylkill River
City Avenue " " " "
Falls Bridge " " " "
Girard Avenue " " " "
Calamet Street " Morristown Br Pas & Ref.
Ridge Avenue " Wissahickon Duct.

And a partial inspection of Fairmount Bridge

#2

Green Lane.

The general condition of this bridge is good. I desire to call your attention to the condition of the upstream end of the west river pier. This portion of the pier is damaged so much as have occured on the face. Owing to the high water at the time and since the inspection I have not been able to determine to what extent the damage is and I deemed it advisable to make a further inspection of the foundations when the water subsides to determine the extent of the repairs necessary.

Left Bank.

The entire iron superstructure of this bridge is in need of painting.

The outlets to the drains on the deck have no conductors, and the water discharges on to the metal work below and has caused the rusting. The outlets to the drains should extend down so as to discharge the water below the bottom chords of the metal work.

In very many points the hand rail of

#3

railing is badly corroded and needs repairing. This amounts to about 50% of the whole amount.

The roller shoes of the west pier span have slipped up against the curtain wall of the pier and does not allow for expansion. The curtain wall at these shoes should be chiseled sufficiently to give a clearance of at least 3 inches between the shoes and the wall.

The lattice girder span over the heads of the piers shows a strength section on their bottom chords where no provision for drainage has been made.

Sufficient holes should be provided for draining at these points.

Falls Bridge

The railings on the approach to the bridge are in need of paint.

The bridge proper is in a good condition.

Grand Avenue

Upon a close inspection of the metal flooring of this bridge it was found

that the portions of the metal floor where no leakage occurred was in a good condition, and the leakage occurred along the curbs, and in the centre of the roadway where the trolley or electric light poles occur.

The leakage at the curbs and on the sidewalks is due to the numerous joints between the granite gutter, granite curb and white marble slabs on the sidewalks, together with cracks in the asphalt wearing surface of the sidewalks.

The amount of corrosion due to the water at these points on the top surface of the floor plates was not determined as it necessitated the removal of the paving which I deem unnecessary at this time.

The leakage can be entirely eliminated at these points by replacing the granite gutters with asphalt and the granite curb, marble slabs, and asphalt wearing surface on the sidewalks by granolithic.

Drainage outlets should be provided at intermediate points on the deck of the bridge where as at present there are only outlets at the extreme ends to take

the water from the entire area of 800 by 102 ft.
Many of the bottom end chords of the trusses have buckled, which is due in all probability to the action of expansion, and in this case the cast iron flanges to the castings at the foot of the ends parts have been broken off.
The rollers are very small for the length of span and they do not act and are not as sensitive to expansion and contraction as longer ones would be.
The chords that have buckled are rectangular 4"x5/8" and 5"x9/8" latticed with 2"x1/2" flats.
These bars should be straightened and reinforced by 3"x3/2"x7/16" angles. One on each bar.
The cast iron ornamental washer at the intersections of the diagonal members have caused corrosion in the diagonals. These should be removed in order to stop the corrosion
Many of the sections of the cast iron vertical bell-causes of the ornamental work are in a dangerous condition and should be either removed or securely fastened to the

iron floorbeams.

The Cap Connections on the piers should be thoroughly grouted and painted at all joints to prevent the water finding its way down to the body of the pier and doing further damage.

Calumet Street

The two lines of main girders of this bridge are not braced their entire length in order to give any lateral stiffness to their top flanges or prevent them from collapsing under a heavy load.

I would recommend their top flanges be braced and a transverse strut-frame or channel of the proper section be thoroughly connected to upright stiffeners at 5 different points in their entire length.

The unit stress produced in the bottom flange by 100 lbs per sq foot, is high for iron and heavier loads than that should be prohibited on the bridge.

Ridge Avenue

The stone arch is in excellent

#7

Condition
Fairmount Bridge

A partial inspection has been made on the portion of the river span and I will continue this tomorrow.
The estimated cost of the several items cited of the above bridges will follow in a subsequent report.

Respect Submitted

Jas W Phillips

Report #2

Feb 26th 4

Spring Garden Street Bridge

Mr Joseph H Coffode
Supt of Bridges
Bureau of Highways

Dear Sir;
I beg to report that I have completed my inspection of Spring Garden Street Bridge and desire to call your attention to the following details;

Plate Girder Spans.
The flange sections of the main girders on three of 4 spans have corroded so as to reduce the section 50% of the original.
The buckled plates on these spans in a great many points are badly corroded.
The columns under the east end of the west span are out of plumb and the South Column is badly buckled, having been struck by a train and is in a dangerous condition.
The rivets connecting the segments of these columns together in many cases are so badly eaten with rust that a block with a spanner

#2

hammer causes them to chip off.
The 4 plate girders spans are all beyond economical repairs and they should be replaced by a new structure.

Pony Truss Span.

The easterly vertical posts in the trusses of this span are out of plumb; There is no provision for expansion or contraction and this no doubt account for them being out of plumb.

The top chords and floorbeams are badly rusted and are badly in need of paint.

West Collonade.

The floorsystem on the west collonade should be renewed or strengthened and the heavy cast iron railings on the deck should be replaced by a new railing lighter in weight, also the blue flagstone pavement renewed with a granolithic wearing surface. This would reduce the dead load considerable.

River Span.

The trusses of the river span are in a good condition except a few minor points.

3

The floorsystem (that is the floorbeams, stringers and brackets) have had their sections reduced considerable by rust, and the floorbeams should be strengthened (as they are lattice girders) and the stringers renew.
The railings on this span are in a very bad condition and as they are of such a construction that repairs to them will cost what a new railing could be placed for, it would be economy to replace them by a new railing of a lighter weight and this same constituents dead weight amounting to 752 lbs per lin foot of bridge, where the new railing would be that much lighter
East Cellonade
The bracket plates and stringers are in many cases badly rusted and their section much reduced and as the live loads as carried by the bridge are heavier than was originally figured the unit stresses in the floorsystem has become very high for iron and it is still higher where the sections are reduced by rust.

4

Over the last Gallonode the surface of the pavement is so flat that there is no perceptible grade and the water does not run off.
This can be easily corrected by giving a grade to the north approach and continuing a lighter grade over the metal deck to the upper apron.
Owing to the past movement of travel over the upper deck of this bridge and as a portion of the west approach has been condemned and since the rebuilding in the near future, the upper deck roadway should be widened to the same width as that of the extension built by the Pennsylvania
The entire bridge where repairs are not made should be thoroughly cleaned of all rust and dirt and be painted with three coats of paint.
Not noted it is determined just what repairs will be made but I furnish an estimate of the cost of the same

Respt Submitted
Jas A Whitelaw

Spring Garden Street Bridge

Estimated Cost for renewing stringers, stringers, floorbeams, roadway and sidewalks on the upper deck and new railing on both deck of river span and for a new floor on roadway and sidewalks on upper deck of east, west Cellonades and east approach to give a roadway of 40' wide and two sidewalks 10'-0 wide each with new railings.

River Span	$29000.00
West Cellonade	24000.00
East "	11000.00
" Approach	11000.00
Approximate Total Cost	$75000.00

Feb 29 1904

Report #3

March 2nd 1904

Mr Joseph H Cofrode,
Supt of Bridges,
Bureau of Highways,

Dear Sir;

I beg to report that I have completed my inspection of the following bridges;
Chestnut Street over the Schuylkill River
30th Street under Market Street
Market Street over the Schuylkill River, except the anchorages, and report in details the following;

Chestnut Street Bridge.

The paving on the roadway is in a bad condition and in many places it is dangerous to travel
The general condition of the metal superstructure is good, except in the following points;
On the west half of the east span cast iron rib under the north curb of the east span, there are 3 columns cracked.
On the east end of the west span, the second panel point from the pier and between the two northerly ribs, one of the diagonal members of the cross frame is broken, and the one in the

#2

adjoining bay has pulled away from its bearing.
The same has occurred at the east end of the east span at the corresponding point.
There are a number of cast sections of the moulding on the outside trusses in a dangerous condition to river travel.
The only corrosion that has taken place is on the inside of this moulding, except the top flanges of the floorbeams where the leakage is bad.
I may state that the leakage occurs at the points where the paving is in a bad condition (particularly in this line of the roadway), and on the sidewalks the leakage is due to the flagstone pavement with its numerous joints.
It would be a protection to the metal work under the sidewalks if the covering surfaces on them were granolithic.
The cast iron railings on the approaches need repairs at many points; or replacing by a new wrought iron railing.
The condition of paint on the metal work is excellent, except at the few points that leakage occurs.

#3

The bottom member of the cross frames between the cast ribs are composed of a channel, and its flanges are turned up, hence forming a trough section in which water collects. Holes should be drill through webs to permit the proper drainage of these points.
The north wall of the east approach between the brick arch spans and 24th Street is badly in need of painting.
The brick arches are in good condition
On the east abutment of the brick arch adjoining the west river span two hairline cracks have developed, and are not sufficiently marked to demand further examination.

30th Street Bridge,

The general condition of painting and metal work is good, and the only points that I desire to call your attention to are;
The bearing plates under the west end of the sidewalk girder at the south west corner, have pushed out and should be replaced.
The spiral stairway is badly in need of repairs as many of the treads are in a dangerous condition

"4

as very many of them are entirely worn out;
The bucked plates under the trolley tracks that rest on the top flanges of the I beams are loose and permit a muddy deposit to drip through on to the metal and one edge of the bucked plates have no connection whatever to the I beams ~~whatever~~.
The railings are in need of paint.

Market Street Bridge.

The railings are, as you well know, in a dilapidated condition, and that is stating it mildly.
The metal work on the main river spans is in a good condition,
There is a perceptable deflection to the sidewalks This deflection does not appear to be of sufficient moment to cause alarm, and as the new railings will relieve the sidewalks of considerable dead load that will materially relieve the floorbeams.
When the floor on the roadway was originally laid provision was made for cable slots, and when the changes was made in the floor for trolley tracks flat plates were provided to span the opening left by reason of this change, and the plates were bolted to the floorbeams (not riveted,) and the greater

#5

number of these bolts have worked loose, and many have no nuts on or have been removed entirely, thus leaving the plates loose, and it is through these joints that a muddy deposit finds its way to the metal work beneath. In many cases this deposit is considerable and at these points rusting occurs.

The plate girder span of the west approach is badly in need of painting and it should be protected from the fumes of the locomotives by a smoke ceiling constructed of wood.

The floor channels on the entire structure is badly rusted as the paint is entirely rubbed off.

I have not made an inspection of the anchorage, and desire to do so, Will you arrange for a man with the proper tools so that the pier doors can be opened to permit of this inspection

Respt Submitted
James W Phillips

Report #4

March 5th 1904

Mr Joseph H Cofrode
Supt. of Bridges;
Bureau of Highways

Dear Sir;

I have completed my inspection of the Walnut Street Bridge, and beg to report the following;

The expansion joints on the deck are in need of repairs, and especially the one at the east end of the west river span. This joint should be repaired so as to give more space for the expansion and contraction that takes place at this point, and it should have a drip pan to carry the water away and discharge it into conductor that terminate below the steel structure.

The only places that corrosion has taken place is under the trolley rails and at the expansion joints.

The leakage under the rails is due to the flat plates under the rails being loose as they were bolted down to the bracket plates. These plates should be riveted

2

down to the bucked plate to insure the joints being tight; but the leakage at these joints would not be entirely remedied as long as the paving along, and between the rails is of the kind it is, (being belgian blocks).
With the light grades that are on this bridge asphalt pavement would overcome the evil of the leakage, and reduce it to a minimum, and it would add to the life of the bucked plate floor and stringers, as well as save the frequent cost of painting the floor system.
All of the expansion joints that are not provided with drip pans, should be so provided.
The ends of the top chords of the two river span at the west river pier do not have sufficient clearance between them to allow of full expansion, as the clearance at a temperature of 35° was only 1 inch. This can be remedied by cutting off the projection of the chords.
The Stringer rest on cast iron blocks, placed

#3

on the top cover plate of the top chords of the trusses and plate girder, and in a great many places these have worked themselves out from under the shingers, some partially other entirely, These should be replaced and bolted to the top cover plates of the chords of the trusses and plate girders, and they should be sufficiently long to allow the beams to move transversely on them (that is longitudinally of the bridge) This is due in all probability from the floor expanding differently from that of the trusses or plate girders.

I find that in a few cases the longitudinal and transverse rods between the Columns under the approaches have been removed by the parties that base the ground from the city

Under the west approach west of 30th Street there is a one story brick stable with a hay loft on top of it which is built of wood. The top of this loft is in close proximity to the body and directly beneath the south portion of it, and along side of this stable

#4

manure has been piled against the base of a column so that the column base and body has been badly corroded.
The portion of the bridge, not under the trolley tracks is in an excellent condition and the paint is good.
The handrails on the deck is composed of a 3½ inch pipe and channel and in a great portion this channel has corroded. This channel should be removed and the railing be thoroughly cleaned and painted.
That portion of the floor system on which the paint has been damaged should be cleaned and painted, but not before the paving on the roadway has been placed in a good condition.
On the west approach one section of the handrail has been entirely eaten up by rust and should be renewed.
On the east end of the easterly plate girder span, the anchor bolts in the bases of the ~~[illegible]~~ the columns are loose and badly eaten by rust. New one should should be provided

+5

and will gravitate into the masonry.
The toll-keepers box on the west end of the bridge has developed two very bad cracks from settlement.
Not until the paving on the roadway has been placed in a perfect condition should the necessary repairs, and painting be done on this bridge as the whole fault of the commission is entirely due to this condition and not as long as there is a belgian block paving on the roadway will the leakage of water through the deck be any better.

Respect Submitted

Jas W Phillips

Report #5 March 5th 1904

Grays Ferry Bridge

Mr Joseph H Coffode
Supt of Bridges,
Bureau of Highways.

Dear Sir; I have completed my inspection of the Grays Ferry bridge, and report as follows;

The hand rails on the railings of entire bridge are badly in need of painting, and the buckled plates and stringers on the two plate girder spans adjoining the west abutment need painting.

The smoke shield over the tracks under the west plate girder span of the west approach are badly in need of repairs.

The Penna R. R. Co have placed a track under the west approach between the column bents and a smoke shield should be provided to protect this portion of the superstructure from the fumes of the locomotives. They have also laid a track directly in line of one of full height piers of the west approach and

#2

have not provided a bumper for the cars; and I find that the end of the pier has been damaged by the cars sticking against the pier, a considerable section having been broken off of the end of the pier.

The Belmar RR Co should provide a suitable bumper at this point so as to protect the pier from any further damage.

The expansion and contraction has shoved off the expansion bolts in the main girders and stringers at the expansion joint, on the west approach midway between the west abutment and the west river span. Suitable bolts should be provided to replace those that are out and as the rust that has taken place at this point should be thoroughly clean off and then the metal work painted.

The gutter inlets at this expansion joint are completely filled up and do not work and I find this is true of several others.

The fixed rails chairs on the ends of the two fixed pin spans are loose, also the movable rails & splice guides need repairs

#3

The Company who constructed this bridge are held liable for the repairs for 3 years and I find that their times has until April 27th 1904 (as the date of final payment is dated April 27th 1904) to run. The Phoenix Bridge Company should make these repairs.

Respect Submitted

Jas W Phillips

Report #6 March 8th 1904

Mr Joseph H Cofrode,
Supt of Bridges,
Bureau of Highways,

Dear Sir;

I beg to report that I have completed my inspection of the following bridges;
South Street over the Schuylkill River.
Girard and Belmont Avenues over Penna, R.R.
40th Street " " "
34th " " " "
and the anchorages to Market Street Bridge.

South Street Bridge.

The wheels and blocks under the turntable of the draw span are in a very bad condition, as I found that but a few of them carried any load, hence it added additional load to the centre.

The wheels, blocks and rocks should be renewed. I would also recommend that a suitable latch and end lifts be provided and that power other than hand power be installed to turn the bridge and operate the end lifts.

#2

After these repairs have been made the draw span should be properly adjusted.
The wooden portion of the fender is badly decayed and is in much need of repairs
The stone cut water portions of the fender should be cleaned out and painted.
All the ornamental cast iron on the two fixed spans wherever it comes in contact with the main members of these spans should be removed and those members thoroughly cleaned of all rust, scaled and painted
The plate girder spans on the west approach are in a good condition.
The three pony truss spans are badly rusted and should be thoroughly cleaned and painted.
The feet of the vertical end posts and end shaft at the east end of the east pony truss span are completely embedded in dirt and are badly corroded. This should be cleaned off the masonry and wherever the shaft fouls the masonry, it should be freed

#3

I also find that the end posts and shut at the west end of the west pony truss span have been partially embedded in the masonry. The masonry should be removed from around the end posts so as to leave a sufficient clearance to afford drainage and facilitate painting them.
The pony truss spans are badly rusted as in a greater portion of the metal work the paint has been eaten away entirely These should be thoroughly cleaned and painted
There is considerable vibration to these span from vehicles passing over them faster than a walk.
The paint on the plate girder spans is in a fair condition, except the west span which should be cleaned and painted.
The leakage that occurs on the portion of the west approach that has a buckled plate floor is under the trolley tracks.
On the west west pier of the draw, the cap course of one of the portions should be reset

#4

pointed and thoroughly clamped
As the west plate girder span is apparently over the tracks where there is considerable drilling done and as this seems to have been damaged more than the other by the fumes from the locomotive. I would recommend that it be sheathed, after the painting has been done.

Girard and Belmont Avenues Bridge
Upon a close examination of the buckled plates and stringers of this bridge I find that corrosion has reduced the buckled plates in many points to mere shells and at others the plates have been eaten up completely and there are places that the plates have broken through
The stringers are composed of 12" I beams and have a span as great as 31'-0"
The stringers in very many cases have deflected and received a permanent set. no doubt due to the long span and reduced sections. Especially is this true of those over the main passenger tracks of the

#5

railroad.
I would recommend that the floor system and all of the cast iron columns be replaced by a new structure and that the stone pier be extended where they exist and where they do not exist, pier be built of the required height and thickness to suit the new columns; and that a light railing not less than 4'-0" high be placed on the bridge to screen the street from the railroad. also wherever there is a brick sidewalk and a granite curb a granolithic sidewalk and a steel bound curb be laid, and that the entire structure be sheathed underneath to protect it from the locomotives
The masonry is in an excellent condition
All ornamental cast iron should be removed as it causes concussion

40th Street Bridge

On the south west corner of this bridge one of the anchorage bars is broken and should be repaired before any further damage occurs

#7

34th Street Bridge

The two easterly spans are somewhat rusted, especially the metal stringers.

The easterly span should be sheathed by all means, as the Penna R.R. Co have raised their tracks so that the locomotives stacks are in close proximity to the metal work, and this the beginning of their new freight line, where there is considerable amount of drilling on a heavy grade.

The span should be thoroughly cleaned and painted and then sheathed in

I have completed my inspection of the anchorages of the Market Street Bridge and find them in a better condition than one would expect.

Respectfully Submitted

James W Phillips

#6

On the north end of the bridge the anchorage and other members attached at these points are badly eaten by rust. I found them embedded in coal dust and dirt. They should thoroughly cleaned and means taken to prevent the collection of dirt or other materials. The girders acting as shuts between the towers and anchorages are weak laterally and in some cases chafe against the top chord bars, in a few cases angles were provided to reduce this chafing. This should be done at the remaining points, and the girder stiffened laterally.
The entire structure below the floor is in needy painting.
I desire to call your attention to the dangerous condition of a plank at the north end of the bridge. This should receive immediate attention as it is loose.

Report #7 March 9th 1904

Mr Joseph H Cofrode,
Supt of Bridges,
Bureau of Highways,

Dear Sir;
I beg to report that I have completed my inspection of Penrose Ferry Bridge, and find that the foundations supporting the wooden parts of the approaches are in a very bad condition, and should either be repaired or the wooden trestling replaced by a solid superstructure be built as was formerly designed and for which the masonry has already been built.
The superstructure of the draw span is in an excellent condition
A suitable rest for the ends of the draw when opened, should be provided to hold the draw against heavy gales.

Respct Submitted

James W Phillips

Report #8 March 11th 1904

Mr Joseph H Cofrode,
Supt of Bridges,
Bureau of Highways.

Dear Sir;
I have completed the inspection of the following bridges;
63d Street over Phila., Balt & Washington R.R.
47th " " " and West Chester "
49th " " " " " "
Chester Avenue " " " " "
57th Street " " " " "
Baltimore Ave over Cobbs Creek
and beg to report as follows;

63d Street Bridge
The portion of the main girders that project above the floor are in need of painting also the handrail.

47th Street Bridge
This bridge is in a good condition and need no repairs.

49th Street Bridge
This bridge is in an excellent condition. The paving on the roadway

#2

has settled and should be brought up to grade and the paving relaid.

Chester Avenue Bridge

This bridge is a pony truss type and is light for the traffic

The sidewalk bracket connection to the floorbeams are weak, as the brackets has deflected and some of the rivets in these connection are not in a good condition

57th Street Bridge

The painting, and sheathing are in an excellent condition

Crack have developed in the wing walls under the copings that allow water to percolate through. These should be filled up with rich mortar or grout.

Baltimore Ave Bridge

The entire superstructure and railings on this bridge are badly in need of paint

The approach on the Phila side has washed out and it should be repaired

This is an inter county bridge as it was built jointly by the City of Phila and

#3

Delaware County.
The estimated cost of cleaning and painting the superstructure two coats of paint amounts to $140.00

Respect Submitted

James W Phillips

Report #9 March 15th 4

Mr Joseph H Cofrode,
Supt of Bridges,
Bureau of Highways.

Dear Sir;
I have completed my inspection of the following Subway bridges;
Bond Street over Penna Avenue
15th " " " "
16th " " " "
and beg to report the following;

Bond Street.

The two inlets at the south abutment do not discharge into the outlet basins, and the conductor to the inlet on the south east corner is broken and permits the water to flow down over the face of the abutment. The conductor to the inlet on the south west corner is too short to permit the water to flow into the basin on the abutment. It is apparent that the conductors were not set in their proper position when built, so as to discharge at all temperatures into the basin below.

The conductors should be made of copper or some

#2

other flexible material and project at least 3 inches into the mouth of the basin below.
The painting on the superstructure is in an excellent condition, except at the curbs and joints in the floor troughs where rust has destroyed the paint, and reduced the section of the steel.

15th Sheet.
The sheathing and painting is in a good condition except at the curbs and under the trolley tracks as was the case on the Broad street bridge.

16th Sheet.
The metal work under the floor, and the main girder are badly rusted and in a greater portion of the metal work the paint is entirely destroyed.
The entire superstructure should be thoroughly cleaned and painted.
The sheathing is in a dangerous condition at several points, and should be repaired at once.
The supports to the gas and water mains are badly eaten by rust and should receive the attention of the proper parties.

tion of the bridge supporting the
is badly needed and the point is
belonged
line of the abutment is in a bad
tone
tion of the bridge should become
tion and the [illegible] should be
[illegible] condition
condition of the abutment is due to
the overflowing the gutter and [illegible] the
the bridge

Respect Submitted
James M Pleiss

#3

That portion of the bridge supporting the railroad is badly rusted and the paint is totally destroyed.
A portion of the sheathing is in a bad condition.
This portion of the bridge should receive attention and the Pat & Ry Co should be notified of its condition
The condition of the sheathing is due to the water overflowing the gutter and conductors under the tracks.

Respect Submitt
James W Phillips

March 15th 1904

Report #10

Mr Joseph H. Clude,
Supt of Bridges,
Bureau of Highways.

Dear Sir,

The appropimate estimated cost of repairs to the following bridges, as inspected to date;

Green Lane over the Schuylkill River.
City Avenue " " "
Calumet Shut " Norristown Br Pen R Rd.
Girard Avenue " the Schuylkill River
Spring Garden Shut " " "
Market Shut over " " "
Chestnut " " " " "
Walnut " " " " "
South " " " " "
Grays Ferry " " " "
Market Shut " 30th Shut
40th " " Main Line Penna R.R.
34th " " " " " "
63d " " P. W. & B. R.R.
Chester Ave " West Chester & Phila R.R.
Baltimore Ave " Cobbs Creek

#2

Broad Street over Penna Ave Subway
16th " " " " "

Green Lane Bridge.
The repairs to the west river pier can not be determined until a further inspection at low water.

City Avenue Bridge.
For cleaning and painting metal work, renewing and repairing railings, placing chain conductors, dressing curtain piers, drilling drainage holes and repairs to floor. $3400.

Calumet Street Bridge.
Placing intermediate shoes, and bracing top chord, incidental repairs and painting $500.

Grand Avenue.

Asphalt paving in gutters	$775.0
Granolithic Steel band curbs	2595.0
" sidewalk paving	5536.0
Cleaning and paint floor plates	600.0
Sharpening and reinforcing shoes	630.0
Removal of cast washer and painting	130.0
Pointing tops of piers	250.0

3

Amount brought forward	$10516.0
Misc painting	350.0
Repairs to railings	750.0
Renewing ornamental left canvas	500.0
Intermediate expansion joint	1350.0
10" I C pipe drain at east abutment	270.0
	$13736.0

Spring Garden Street

Renewing 4 plate girder spans	$32000.0
" pony trusses 1 span	35000.0
Widening and repairs to the west colonade, river span, east colonade and east approach on upper deck, and new railway on lower deck of river span	75000.00
	$142000.00

#4

Market Street Bridge

New railings, fascia channels; smoke ceiling over the roadwards east and west sides, cleaning and painting, repairs to buckled plate floor and repairs to sidewalk paving $13000.00

Chestnut Street

Repairing cast iron shutters and cols. drilling drainage holes in shutters, repairs to railings, base moulds, pointing north east wall and repairs to the sidewalk paving $3000.00

Walnut Street.

Repairs to expansion joints, cast hinges seats, railings and painting same, new anchor bolts, repairs to watch house and cutting top chord for clearance together with dirt fan and conductors $2400.00

45

South Shut
Repairs to draw span as follows; new wheels, track and rock, wedges and latch, painting and removal of cast ornaments and repairs to the cap course to west rest pier, $5000.0
Cleaning and painting 2 pony truss spans, cleaning at ends of same, painting and cleaning west plate girder span, cleaning and painting railings $1500.0
Grays Ferry Bridge
Painting railings, one west plate girder span, stringers and bracketed plates, repairing smoke ceiling, new smoke ceiling under west approach and repairs to expansion joints $1400.0
Market Shut over 30th Shut
New stairway, repairs to one main girder seat, painting railings $650.0

#6

40th Street

Repairs to anchorages $300.0

(other repairs to this bridge overlooking)

34th Street

Smoke ceiling under east span,
cleaning and painting the same and
cleaning and painting metal stringers
on one span $1300.0

63d Street

Painting ceilings and a portion
of the main girders above floor $150.0

Chester Ave

Repairs to bracket connection
and painting $150.0

Baltimore Avenue

Cleaning and painting $140.0

Broad Street

Repairs to inlets, and painting $300.0

16th Street

Cleaning and painting steelwork
and repairing smoke ceiling $500.0

#7

Summary

City Avenue	Bridge	repairs	$3400.0
Calumet Street	"	"	500.0
Girard Avenue	"	"	13736.0
Spring Garden	"	" and renewal	142000.0
Market Street	"	"	13000.0
Market and 30th Streets	"	"	650.0
Chestnut "	"	"	3000.0
Walnut "	"	"	2400.0
South "	"	"	6500.0
Grays Ferry	"	"	1400.0
40th Street	"	"	300.0
34th "	"	"	1300.0
63d "	"	"	150.0
Chester Ave	"	"	150.0
Baltimore Ave	"	"	140.0
Broad Street	"	"	300.0
16th "	"	"	500.0

Total for renewals & repairs $189426.0
Less renewals $62000.0
Total for repairs only $127426.0

#8

For cleaning and painting in this estimate it is the intension to have a rust, scale and dirt to be thoroughly cleaned off of the metal work and two coats of paint to be applied and this work should be done under a specification setting forth clearly the methods to be pursued and the quality of paints to be used and how applied and all painting should be done by contract and under the supervision of an inspector at all times.

Yours Respt

James W Phillips

Report #11 March 17th 4

Mr Joseph H Cofode,
Supt of Bridge,
Bureau of Highways,

Dear Sir,
I have completed my inspection of the following bridges;

17th Street over Penna Avenue
18th " " " "
19th " " " "
20th " " " "
21st " " " "
Poplar " " " "
Oxford " " Connecting Ry
Columbia Avenue " " "

17th - 18th and 19th Street Bridges

The sheathing on these bridges is in a good condition. The trap door in the sheathing are not securely fastened as the hooks as were provided has rusted away and become loose. The damage to the paint under the sidewalks is entirely due to the water percolating through the metal floors at the curbs and along the trolley tracks.

+2

The paint on the metal work under the sidewalks is badly damaged and in very many cases the paint hangs down in festoons from the floor beams.
In all cases the bottom flanges of the main girders are eaten with rust.
The entire metal work and ironwork of the railing should be cleaned and painted.
In many cases the bolts holding the stringers, under the hallway rails, down to the metal decks are loose and it permits water to find its way through, so much so that piles of dirt has accumulated on the metal and sheathing beneath.

20th Street

The condition of the paint and rusting is worse on this bridge than the others, as the muddy water lays several inches deep in many of the bays of the sheathing and the water runs through the expansion joint at the hallway blocks and finds its way down the face of the abutment.
This bridge should thoroughly cleaned

#3

and painted, as the condition of paint is the same as on the other bridges cited.

Poplar Street

The floorbeams, stringers and sidewalk brackets on this bridge are almost totally destroyed by corrosion, and in many cases the webs of the floorbeams and stringers are entirely eaten away and the entire structure is in such a weakened condition that it should received immediate attention and should should be restricted.

Oxford Street

The railings are badly in need of repairs and painting.

The entire superstructure should be cleaned and painted

The paving around the diagonal and vertical members of the trusses should be removed and a clearance of at least 3 inches be provided at all of these points.

The entire structure should be sheathed, especially that portion that portion that is over the railway tracks.

#4

Columbia Avenue

The Main girders of this bridge are so weaken by corosion that the bridge is in an unsafe condition.

It should receive immediate attention as and accident is liable to occur at any time.

Respect Submitted

Jos W Phillips

March 18th 4

Final Report.

Mr Joseph H Cofrode,
Supt of Bridges,
Bureau of Highways.

Dear Sir;

In closing my reports upon the inspection of the bridges as cited in my reports to you I beg to offer for your consideration a few suggestions

In many cases on our bridges there has been provided drainage and expansion joints, that need attention, as they become filled up with dirt and other materials and cease to work, and other numerous small repairs required prompt attention which with your limited force often cause long delays and further damages.

I would therefore suggest for your future consideration, that a repair gang of three men and one foreman with a suitable wagon and horse be provided and attached to the Bureau of Highways and this gang of men be known as the "Bridge repair gang" and this gang be under the direct supervision of the Supt of Bridge, and that the foreman be a competent enough man to make

#2

examinations and report the same, and that the whole gang of men be men that are competent to do repairs and paint bridges such as the Safety Bridges would direct; and that these men be appointed. Such a gang would be of uncalculable assistance in keeping the bridges in repair.

In closing allow me to thank you for your kind attention, consideration and timely suggestions. I also desire to express my thanks to your assistant Mr F. C. Watson for his valuable assistance to me during the inspection

Respect Yours

Jas W Phillips

PROGRAM,
RELATIVE TO ADVERTISEMENT AND RECEIVING BIDS.
ON THE
P. G. & N. AND RICHMOND BRANCH ELEVATED.

June 27, 1907.

1. Approval of (tracings) plans, as required by Ordinance - one copy on linaura to be filed in Bureau of Surveys, and one copy on linaura filed with Railway Company. Send three additional copies of blue prints (paper) to Railway Company for general use.

2. Order prints of plans for use of bidders and have specifications printed.

3. Have printed copies of specifications approved, as required by Ordinance - File one copy in Bureau of Surveys and one copy with Railway Company. Send three additional copies to Railway Company for general use.

4. Ask Railway Company to approve date for receipt of bids (informally).

5. The Director, Department of Public Works to advertise for bids in at least 3 daily papers, and for large contracts, also in 2 Engineering papers, and order 5 copies of each issue for filing on schedules.

6. Notify the Railway Company of the advertisement, papers, and the date of receipt of bids, and invite representatives to be present.

7. Exhibit a copy of all plans and specifications, Plans to be linaura prints. Mark all plans and specifications "Exhibited for Proposals received.....190 ."

8. Give each intending bidder a set of prints, specifications, proposal, and an envelope properly marked.

9. Require a deposit for all plans and specifications from all intending bidders, keeping their names and adresses, and upon the return of the plans and receipt, return the deposit.

10. Give no verbal information to bidders involving an interpretation of the plans and specifications; any interpretation necessary to be given to be sent by letter to all bidders.

11. Before the date set for opening bids, prepare a schedule for bids on the usual blank form, also on tracing linen, size 17" X 28".

12. Before receiving bids prepare an estimate of the cost of the work and forward copy to Director of the Department of Public Works.

13. After bids are received, schedule them, and prepare 6 copies, 3 copies for the City and 3 copies for the Railway Company. On these schedules paste copies of the advertisement from the different issues of the Newspapers. Forward the "original copy" of the schedule to the Director for award, and also at the same time send copies of the schedule to the Railway Company with copy of the Bureau's estimate of cost.

14. File the exhibited copies of the plans and specifications, indentifying them.

15. Notify the Railway Company of the award.

16. Notify the Contractor of the award.

17. Send 3 copies of the contract to the Railway Company.

(Approved JUL 2 1907 DIRECTOR, DEPARTMENT OF PUBLIC WORKS)

Clifford Richardson,
Proprietor.

(COPY)

NEW YORK TESTING LABORATORY,

C. N. Forrest,
Chief Chemist.

MAURER, N. J.

New York Office
50 Church St.
New York.

October 9th, 1908.

Mr. Samuel Tobias Wagner,
Asst. Engr., P. & R. Ry. Co.
2601 N. Broad Street,
Philadelphia, Pa.

Dear Sir:

Your letter of the 6th inst. was duly received, and we beg to say that the coating of "Positive Seal Felt" is essentially a Gilsonite compound, containing maltha as the softening agent.

The character of compound used for plying the sement on a waterproofing course should depend upon whether the work is exposed to fluctuating temperature changes or to a rather constant temperature, such as underground construction.

For the former purpose a special compound is required, and it should meet the requirements of the specifications enclosed herewith.

For underground work we should prefer a compound of lower melting point and would specify the following:

It must be free from coal tar, blown oil products or petroleum pitch.

Its consistency when heated at 78° F. for 5 seconds with a #2 needle under 100 gram load should be between 6.0 and 7.0 M.M.

Its melting point when a cube 1 M.M. is tested on the surface of mercury must be between 130 and 140° F.

It shall contain not less than 99.5% bitumen soluble in carbon di-sulphide, and not less than 75% soluble in cold naptha.

When 20 grams is heated in a glass or tin dish 1/4" diameter for 7 hours at 325° F. it shall not lose more than 1.0%.

It must not contain more than .75% hard paraffine.

It must be sufficiently fluid for use at a temperature not exceeding 300° F.

Such a cement has great cementing qualities, and can only be made with a high grade natural asphalt and must be Barber Asphalt.

The Positive Seal cements prepared by the Barber Asphalt Paving Co. should you desire comply with these specifications, samples we shall be pleased to furnish them.

Yours very truly,
NEW YORK TESTING LABORATORY,
(Signed) C. N. Forrest.
By C. N. Forrest.

F.C.

RECEIVED
OCT 8- 1908
ROADCROSSING
DIVISION

(COPY)

New York Office,
30 Church St.
New York.

NEW YORK TESTING LABORATORY,

MAURER, N. J.

Clifford Richardson,
Proprietor.

C. N. Forrest,
Chief Chemist.

October 2nd, 1908.

Mr. Samuel T. Wagner,
Asst. Engr., P. & R. Ry. Co.
Broad and Huntingdon Sts.,
Philadelphia, Pa.

Dear Sir:

Referring to our letter of September 25th, concerning Genasco Positive Seal Felt, we have just made a test of this material which we think will be of interest to you, and enclose herewith, on separate sheet, the results of same in comparison with Hydrex felt.

Upon inspection of this data you will doubtless share our opinion that Positive Seal is equal, if not superior, to Hydrex or any waterproofing felt available.

Yours very truly,

(Signed) NEW YORK TESTING LABORATORY,

By. C. N. Forrest.

F.C.

RECEIVED
DEC 8- 1908
GRADE CROSSING
DIVISION

(COPY)

COMPARITIVE TEST OF GENASCO POSITIVE SEAL FELT
AND HYDREX WATERPROOFING FELT.

	Genasco Positive Seal	Hydrex
	#106352	#100697
Complete Felt.		
Weight per 100 sq.ft.	14.79 lbs.	15.3 lbs.
Thickness	.032"	
Tensile Strength - 1" strips:		
Length,	85 lbs.	63 lbs.
Width,	27 "	25 "
Bitumen	59%	54.5%
Dry Felt:		
Weight per 100 sq.ft.	6.05 lbs.	6.90 lbs.
Thickness	.023"	.025"
Tensile Strength:		
Length,	58 lbs.	6.6 lbs.
Width,	19 "	4.3 "
Ash	4.1%	3.9%

NEW YORK TESTING LABORATORY,
Maurer, N. J. Oct. 2, 1908.

RECEIVED
DEC 8 - 1903
GRADE CROSSING
DIVISION

(COPY)

ELGIN NATIONAL WATCH COMPANY.

Elgin, Ills., Sept. 28th, 1908.

Philadelphia & Reading Ry. Co.,
2601 N. Broad Street.,
Philadelphia.

Gentlemen:

Replying to your inquiry under date of the 25th inst.

We have used a little of the "Positive Seal Felt", and also the Waterproofing Cement that goes with it, but not in situations which would test it very severely.

There is on our premises, however, a tunnel portions of which are two or three feet below the level at which water usually stands in the ground surrounding it. This tunnel was built for us by the Genasco Roofing Co., a branch of the Barber Asphalt Paving Co., and is still tight after three years service. We believe the "Positive Seal Felt" was used in its construction.

Yours truly,

(Signed) ELGIN NATIONAL WATCH CO.,
Geo. E. Hunter,
Superintendent.

D.L.

RECEIVED
FEB 8- 1908
GRADE CROSSING
DIVISION

(COPY)

New York Office
30 Church St.
New York.

NEW YORK TESTING LABORATORY.

MAURER, N. J.

Clifford Richardson,
Proprietor.

C. N. Forrest,
Chief Chemist.

September 25th, 1908.

Mr. Samuel T. Wagner,

Asst. Engr., P. & R. Ry. Co.

Broad and Huntingdon Streets,

Philadelphia, Pa.

Dear Sir:

We have been requested by The Barber Asphalt Paving Co., of Philadelphia, to write you concerning Genasco Positive Seal Felt, one of the products of that company.

In compliance with this request we beg to say that we have collaborated somewhat with The Barber Asphalt Paving Co. in the production of this felt, and enclose herewith copy of specifications which is the standard under which the material is manufactured. We do not hesitate to say that felt having the characteristics shown is equal, if not superior, to any waterproofing felt available, and we are quite sure that our friends, The Barber Asphalt Paving Co., will be very glad to consider this specification as applying to any felt which it may be called upon to supply.

We have gone into the matter of waterproofing felts very thoroughly, and believe this specification covers every feature of a first class product for this purpose.

Yours very truly,

(Signed) NEW YORK TESTING LABORATORY,

By C. N. Forrest.

RECEIVED
DEC. 8- 1908
GRADE CROSSING
DIVISION

L.C.

POSITIVE SEAL FELT.

A high grade wool felt, saturated and coated with asphalt.

Width of Felt.....	36 inches.
Square feet per roll.....	400 sq.ft.
Weight per roll - net....	Not under 70 lbs.

DRY FELT:

Weight per 100 sq.ft.....	Not under 5-1/2 lbs.
Ash.....	" over 8%
Wool (Soluble 2% NaOH)...	" under 25%
Tensile Strength-1" section:	
Length.....	Not under 35 lbs.
Width.....	" " 18 "

SATURATED & COATED FELT:

Weight per 100 sq.ft.....	Not under 17 lbs.
Character of Surface Dust	Wood Pulp.
Amount of Surface Dust (p/100 sq.ft.)	Not over 1/2 lb.
Tensile Strength-1" section:	
Length	Not under 50 lbs.
Width	" " 25 "

Must not crack at 41° F. when a strip 1" wide is rolled over a rod 1/4" diameter.

(COPY)

POSITIVE SEAL FELT.

A high grade wool felt, saturated and coated with asphalt.

Width of Felt.....	36 inches.
Square feet per roll.....	400 sq.ft.
Weight per roll - net....	Not under 70 lbs.

DRY FELT:

Weight per 100 sq.ft.....	Not under 5-1/2 lbs.
Ash.....	" over 8%
Wool (Soluble 2% NaOH)...	" under 25%
Tensile Strength-1" section:	
Length.....	Not under 35 lbs.
Width.....	" " 18 "

SATURATED & COATED FELT:

Weight per 100 sq.ft.....	Not under 17 lbs.
Character of Surface Dust	Wood Pulp.
Amount of Surface Dust (p/100 sq.ft.)	Not over 1/2 lb.
Tensile Strength-1" section:	
Length	Not under 50 lbs.
Width	" " 25 "

Must not crack at 41° F. when a strip 1" wide is rolled over a rod 1/4" diameter.

RECEIVED
DEC. 8 - 1908
GRADE CROSSING
DIVISION

(COPY)

THE BARBER ASPHALT PAVING COMPANY.

Land Title Building,

PHILADELPHIA.

H.R.Wardell,
General Sales Agent.

September 24th, 1908.

Mr. Samuel Tobias Wagner,
Asst. Engineer, P. & R. Ry. Co.,
Broad & Huntingdon Sts., Phila.

Dear Mr. Wagner:

Mr. Jacob Hunter, whom we asked to call upon you yesterday, reports that you are yet holding up the question of the admission of Positive Seal Felt until you can receive some further information. The points that you have brought up with Mr. Hunter seem to the writer to be entirely pertinent, and I take this opportunity to give you some further information, which I omitted in my former communication.

It is the policy of this company to work open and above board with respect to the materials which we use. In other words, there is no mystery in bituminous compounds except at such times when manufacturers wish to deceive with respect to their product.

In reference to Positive Seal products we wish to state that the felt is manufactured in Lockport, N. Y., by the oldest and perhaps the best manufacturer of felts in the United States. We understand that it is a specially processed fabric made of the very best selection of rags so that the extraordinary strength may be obtained. As a matter of fact, this is the only mill in the United States that can produce this grade of felt, except the felt factory of F. W. Bird & Son, East Walpole, Mass. and we know that Messrs. Bird and Son have purchased felt from the Lockport concern when they have been so ruched that they, themselves, could not turn out the quantity of materials that they had sold, which is not, however, usually the case. So much for the felt.

With regard to the saturation and coating, we wist to state that this is a combination of Gilsonite and Asphalt Base Oil. These two bituminous materials are mixed in proper proportions and treated by an oxidizing process, so that they will be more pliable at low temperatures and more stable at high temperatures. The saturating compound is also a combination of Gilsonite and asphaltic residual oil, properly proportioned, to which is added a small amount of paraffine wax, not rosin, (please note thisO so that the felt may be thoroughly impregnated, the paraffine wax acting as a fluxing agent. Other manufacturers of similar goods are supposed to use rosin, which is very much cheaper. We know, however, that rosin sets up an aciduated condition, which is not desirable.

There has always been some question as to the advisability of Trinidad Lake Asphalt for use under water, or in the earth. It is claimed that there are certain salts and vegetable matter impregnated in this material which decompose, although there are honest, intelligent opinions to the contrary. However, it is an established fact that Gilsonite is the purest and most remarkable asphalt that has ever been discovered, and this is the material that we use.

RECEIVED
DEC 18 1908

#2 9-24-08.

For your general information, with regard to bitumens, I would state that Hydrex is manufactured from a questionable bitumen, known as Elaterite. Elaterite is found in the same great hydro-carbon field in Utah as Gilsonite. It is very peculiar in its characteristics, inasmuch as a chemical has never been found which will dissolve the product. Therefore, to get Elaterite in shape so that it may be used, it is placed in a retort under a vacuum, and palm oil in small quantities added. Excessive heat, up to 800 or 1000 degrees, is employed and destructive distillation takes place. When the compound is broken down, it fluxes with the palm oil and can then be drawn off and used. Such authorities as Richardson, Dowe, Voorman and others feel disposed to criticise this material and question its adaptability and value for the purpose for which it is designed, although we, The Barber Asphalt Paving Co., are not prepared to state that it is valueless. As a matter of fact, with reggra to Positive Seal Products, we do not claim them to be any better than Hydrex, inasmuch as we know that Hydrex has given good satisfaction, but we are sure of our position with regard to the bitumens we are using, as the same have been used for other similar purposes for the past fifteen years with pronounced success.

We will put the question up to Dr. Richardson and ask him to write you direct with regard to Positive Seal Felt as compared with Hydrex, and we know that he will give you an unbiased, honest opinion. If the same is against us, we of course will have to stand by it, but we feel certain that he will write you and say that he believes Positive Seal Felt to be equal to Hydrex in every respect, inasmuch as we have already put this question to him several times to satisfy engineers who expect to be prospective users.

We are sincerely very much obilged to you for asking Mr. Hunter the questions you have, which have given us the opportunity to more fully explain. The tunnel that the writer mentioned in his communication of recent date, we understand connects the large factories of the Elgin Watch Co. at Elgin, Ill. The material was applied by a subsidiary company of the Barber Asphalt Paving Co., then known as the Genasco Roofing Co. of Chicago, now known as the Mastic & Cement Dept. of the Barber Asphalt Paving Co., with offices in the Stock Exchange Building, Chicago.

With this letter, we are sending you a sample of Positive Seal Fabric, which no doubt will interest you. This material is coated with the same coating, except a trifle softer, than that in the Positive Seal Felt. The Fabric is now being used in the Tunnels in the City of New York for waterproofing purposes, and originated in Germany where the writer three years ago watched the German engineers building overhead construction in the City of Berlin. It seemed to the writer to be the most desirable matrix that could be invented for the purpose, inasmuch as the jar and vibration could not possibly, in any way, dislodge the waterproofing or crack the same at any temperatures, since which time we have perfected the Fabric and are now selling the same in large quantities throughout the United States.

I thank you for your attention, and beg to remain,

Faithfully yours,

(Signed) H. R. WARDELL.

HRW-o

RECEIVED
DEC 8 - 1908
GRADE CROSSING
DIVISION

(COPY) THE BARBER ASPHALT PAVING COMPANY.

Land Title Building.

Philadelphia, September 24th, 1908.

H. R. Wardell,
General Sales Agent.

Dr. Clifford Richardson,

New York City.

Dear Sir:

Mr. Samuel Tobias Wagner, Assistant Engineer, Philadelphia and Reading Railway Company, with offices at Broad and Huntingdon Streets, Philadelphia, would like you to give him a direct opinion on Genasco Positive Seal Felt.

Is Genasco Positive Seal Felt, in your opinion, equally as good as Hydrex, which is manufactured by Messrs. F. W. Bird & Son of East Walpole, Mass.

Will you kindly write Mr. Wagner on this subject and very much oblige,

Yours very truly,

(Signed) H. R. WARDELL,

General Sales Agent.

HRW-o

RECEIVED
DEC 8- 1908
GRADE CROSSING
DIVISION

(COPY)

THE BARBER ASPHALT PAVING COMPANY.

Land Title Building.

PHILADELPHIA.

H. R. Wardell,
General Sales Agent.

September 14th, 1908.

Mr. Samuel Tobias Wagner,
Asst. Engineer, P. & R. Ry. Co.
2601 N. Broad St., Philadelphia.

Dear Sir:

Replying to your letter of the 11th inst. we have to say that up to the present time, we have not, to our knowledge, sold any Positive Seal Felt for any very large work in the East, inasmuch as we have only recently begun the manufacture of the same.

The history of Positive Seal products is as follows: Sometime ago the writer was in Germany and at that time found that a closely woven burlap, saturated and coated with asphalt, was being used in lieu of felt on most of the large waterproofing improvements in that country, and especially on overhead railway construction where serious vibration usually broke the waterproofing seal and caused the same to leak. We began the manufacture of this Fabric about a year ago, since which time we have had the same adopted on the Subway in New York City and on several sewers. We have not, however, exploited the Positive Seal Felt which we added to our line of waterproofing products to meet the competition and claims of the Hydrex manufacturers.

We do not claim that Positive Seal Felt is superior to Hydrex, but are pleased to state, with every assurance, that the same is equal thereto. As a matter of fact the felt is purchased from a mill which often furnishes these goods to Messrs. F. W. Bird & Son of East Walpole, Mass. The same general saturation is provided, and the coating we use is strictly of high-grade, pure bitumen, which is also the case with the Hydrex goods.

When we manufactured these goods we submitted the same to the New York Testing Laboratory for their approval, and they claim that Positive Seal Felt is equal to Hydrex, but contains more waterproofing material, i. e. bitumen.

The reason we have not sold any very large amount of Positive Seal Felt is simply because the material has not been in the market a sufficient length of time for us to ~~xxxxxxx~~ approach intending purchasers of this material. We have ~~xxx~~ been diligently bending our efforts toward the use of Positive Seal Fabric instead of the Felt and ahve, therefore, been more successful with it. Several small jobs have been done with this material, the largest of which was a tunnel at Elgin, Ill. This job was entirely satisfactory, but as before stated, we have not approached any of the engineers with this material, inasmuch as no large operations that we know of have been proposed since it has been in the market.

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DIVISION

#2 9-14-08.

Please do not misunderstand us. We have no desire in any way to under estimate the value of Hydrex which you have specified, but merely ask for recognition in accordance with your specifications as producing a product equal to that which you have named as a standard. If you desire, we will have the New York Testing Laboratory make a test of these commodities and give you the benefit of their judgment in the premises. As the writer stated to Mr. Hunter, it is not our desire to in any way belittle the material that you have selected, but to ask merely for recognition under the specifications as producing a commodity equal thereto.

We thank you for your kind consideration, and ask that if you please, you take into consideration the standing of this concern in coming to some decision with regard to the matter, and beg to remain,

Very truly yours,

(Signed) H. R. WARDELL,

General Sales Agent.

HRW-o

P. S.- Since writing the above we have learned that Positive Seal Felt was used in the waterproofing of the Municipal Hospital, this City, to the extent of 40,000 sq.ft.

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DEC 8 - 1908
GRADE CROSSING
DIVISION

(COPY)

WATERPROOFING ASPHALT CEMENT.

The asphalt must consist of a combination of hard native bitumen and asphaltic flux which will possess the following characteristics without being subjected during the process of manufacture to other manipulation than heating and mechanical agitation:

(a) It must be free from coal tar or blown oil products.

(b) Its specific gravity at 78° F shall not be lighter than water.

(c) Its consistency when tested at 78° F for five seconds with a #3 needle under 100 gram load shall be between 3.5 and 4.5 m.m.

(d) Its melting point when a cube 1 m.m. is tested on the surface of mercury must be at least 200° F.

(e) It shall contain not less than 99.5% bitumen soluble in carbon bi-sulphide, and not less than 65% soluble in cold 88° naptha.

(f) When 20 grams of the asphalt is heated in a glass or tin dish 2-1/4" diameter for 7 hours at 325°F it shall not lose more than .5%

(g) It must remain ductile when a prism 1/8" x 1" x 3" is reduced to a temperature of 0° F in a mixture of ice and salt.

(h) A 2" cube must not flow or be distorted when exposed 10 hours to a temperature of 110° F or directly in the warmest summer sun.

(i) It shall not contain more than .25% hard paraffine.

(j) It must be sufficiently fluid for use at a temperature not exceeding 425° F, and at this temperature adhere to clean dry stone or concrete which is not cooler than 80° F.

(k) A thin coating on glass must be unaffected by cold water or dilute acids and alkalies.

(l) When the structure is cooler than 80°F a paint coat consisting of 8 parts of the asphalt and 10 parts 62° benzine will be spread before applying the waterproofing course.

New York Testing Laboratory.
Maurer, N. J., June 22, 1908.

RECEIVED
APR 8 1908
GRADE CROSSING
DIVISION

05

January 5 9

Rev C L Rover
Columbia, Pa.

Reverend Sir.

Enclosed please find money order for thirty-one (31) dollars for rent of premises Oak Lane.

On day this week the hot water pipe leading from the boiler in the kitchen broke and caused the hot water to escape. As this was a matter that would cause serious results I at once sent for Mr Stonebolt and he made the mending repairs. His charges for this work be one dollar & fifty cents ($1.50).

Shall I pay him and sent the receipts here to you and you give me a credit for that amount or shall he render the bill direct to you.

There is something the matter with the kitchen range. I am in fear that the folks will be injured sometime by it if it is not looked after. Can you have this looked into. Yours truly

James O Phillips

Feb 24 9

Mr H M Van Sant
70 Park Place
Newark N.J.

Dear Sir.
Enclosed please find money order for Sixty dollars and thirty two (60.32) cents premium on policy 140770.

Yours truly
James W Phillips

March 6th, 1909.

Crane Company,

519 South Canal Street,

Chicago Ill.,

Gentlemen, Will you forward me a copy of your 1908 Pocket Catalogue No. 40. giving pipe fittings,

Thanking you in advance, I am,

Yours truly,

James Phillips

Asst. Engineer-in-charge
Grade Crossings.

March 6th, 1909

Mr Austin Sweeney,

Greenville N.H.,

Dear Sir,

Replying to your letter of Febuary 18th, in relation to properties I would state in relation to the two properties you spoke of in your letter one of 95 acres and the other of 80 acres, if it not too much trouble for you to send me a photograph of them and give me the direction they are from Greenville, as I am somewhat familiar with that part of the state, having spent one summer there.

I desire to know whether they are on the raod leading to New Ipswich Village or to Temple Village, also as to the church, school and library facilities in Greenville.

Thanking you for your trouble in advance, I am,

Yours truly,

James W Phillips

Address,

502 Cheltenham Ave.,

Oak Lane, Phila., Pa.

MR. AUSTIN SWEENEY,

GREENVILLE,

N.H.

18

March 15,1909.

Rev.C.H.Rorer,

Columbia, Pa.,

Reverend Sir,

Enclosed please find money order for thirty-one $31) dollars for rent of property at Oak Lane.

During the severe wind storm of March 3rd, the wind broke the lock and fastening of the back kitchen door and I was compelled to purchase a new lock in order to keep the door shut. The lock cost one (1) dollar, and upon receiving the bill for repairing the leak in the pipe in the kitchen from Mr Staniforth I will forward both bills ,prpoerly receipted to you.

I desire to call your attention to the dangerous condition of the steps leading from the front walk to the driveway, as a gentleman called to see me the other evening and as he left the house he fell and injuried himself, but fortunately not seriously. Will kindly have this matter attended too.

Yours Truly,

James W Phillips

March 19th, 1909

Mr. P.W. Pullen,

237 North Broad Street,

Trenton, N.J.,

Dear Sir,

I have your postal relating to my Grandfather's desk, and in which you state that you are going to move, and ask me whether I would like to have it, in reply I would state thatv I would like very much to have it, and if you will crate it and send it to me by freight I will pay the freight.

Send by freight by the Philadelphia and Reading Railway to Oak Lane Penna., and the freight to be collected this end.

Trusting you and your mother are well I am,

Yours truly,

James W. Phillips

Asst. Engineer-in-charge

Abolishment of Grade

Crossings

MR. P.W. PULLEN,

237 NORTH BROAD STREET,

TRENTON, N.J.

Philadelphia, Pa., April 20, 1909

Mr Thomas Lanning,

Lawrenceville, N.J.,

Dear Sir,

I suppose you have wandered what has become of me since I saw you last on the farm.

The place was sold before I knew of it and I would have been at the sale with intention of buying it in if I had knowned when the sale was to take place.

I understand that the place is for sale by the party and I am anxious to find out who the party is and in what terms it can be purchased.

Can you find this out for me and let me know? when I hear from you I will come up and see you some Sunday

It was my intention to purchase the place at the time of the sale and have you to remain there, and if I can purchase the place at a reasonable price I will do so.

Trusting you are all well, I am

Yours truly,

James W Phillips

Address,

Room 767 City Hall

Philadelphia, Penna.

MR THOMAS LANNING?

LAWRENCEVILLE?

MERCER COUNTY?

NEW JERSEY

J. W. PHILLIPS.

July, 15, 1909.

Mr. W. D. Sargent,

Ludlow, Vermont,

Dear Sir,

I learn through Mr Geo. M. Kendall of New York that you have furnished cottages for rent,

I am desirous of renting a furnished cottage for the month of August, and if you have anything to offer please advise me at an early date.

Mr Kendall was neighbor of ours while here in Philadelphia and he called to see me this A.M., and spoke of the probability of being able to rent a cottage from you.

Yours truly,

James W. Phillips

MR. W. D. SARGENT,

LUDLOW,

VERMONT.

J. W. Phillips.

Sept.23,1909.

Mrs.Henry T.Champeny,

New Ipswich, N.H.,

Dear Mrs.Champeny,

I forward you herewith the draft of a deed for the Gibson property,and in going over it I do not find the price stated therein.It is my understanding that the price for the property free of all incumberances(including taxes for the year of 1909 and the premium on the fire insurance policy) is twenty-two hundred and fifty (2250) dollars,and that there are no reservations except that of the water from the spring near the Boston and Keene Turnpike.

It is agreed to transfer the fire insurance policy to the purchaser upon the the execution of the deed and at the time of the first payment is made.

I will be able to make the first payment on or about the 15th, of October next, and then we can arrange for the remaining payments,either in semiannually or quarterly payments.

I would like to meet in New York as we can talk matters over much better than we can write,and if you would advise me just when you and Mr Champney will be in taht City I will arrange tom meet you.

I would like very much if you would leave the stoves in the house except the one in the sitting-room,and as to

the three wagons I would like to have them.

Please leave the keys with Mr Tuttle as we are going to have him to make some repairs to the house this winter.

Kindly advise when we can meet in N.Y.City,

Yours truly,

Oct.15th,1903.

Mrs.Henry T.Champeny,

309 West 78th,Street,

New York City,N.Y.,

Dear Mrs.Champaney,

In my last letter to you in relation to the Gibson place,I neglected to mention the matter as to the mortgages

Will you kindly arrange to have them in two, the first one for one thousand (1,000) dollars,and the second one for seven hundred (700) dollars, the first to be paid in five (5) years the second to be paid within two (2) years,and to bear four and one-half per cent interest per annum.

Yours truly

James W. Phillips

Nov.4th,1909.

Mr. William A. Preston,

New Ipswich,N.H.,

Dear Sir,

In reply to a letter received this date from Mrs, Champeny relative to the Gibson place,I desire to state that there seems to be some misunderstanding as to the mortgage, more especially as to the time.

I desire to state it is my understanding that it is run two and one-half (2 1/2) years, with interest at the rate of four and one-half (4 1/2) per cent,payable semi-annually.

Please prepare the papers accordingly and forward them to me.

Yours truly,

James Phelps

MR. WILLIAM A. PRESTON,

NEW IPSWICH,

N.H.

MRS. HENRY T. CHAMPENY,

309 WEST 78th,STREET,

NEW YORK CITY,

N.Y.

Nov.4th,1909.

Mr. William A.Preston,

New Ipswich,N.H.,

Dear Sir,

In reply to a letter received this date from Mrs, Champeny relative to the Gibson place,I desire to state that there seems to be some misunderstanding as to the mortgage, and especially as to the time.

I desire to state it is my understanding that it is run two and one-half (2 1/2) years,with interest at the rate of four and one-half (4 1/2) per cent,payable semi-annually.

Please prepare the papers accordingly and forward same to me.

Yours truly,

James W. Phelps

MR. WILLIAM A. PRESTON,

NEW IPSWICH,

N.H.

MRS. HENRY T. CHAMPENY,

309 WEST 78th,STREET,

NEW YORK CITY,

N.Y.

Nov.9th,1909.

Mrs.Henry T.Champeny,

309 West 78th.Street,

New york City,

Dear Mrs Champeny,

Your letter of Nov.4th,awaited me on my return to the office,and in reply to same would state that I was in New York on October 30th last,and was disappointed to not have found you home,as I wrote you that I was coming on that date.

It is my understanding that I would pay down on the Gibson place about $600. and I beg to state that I am ready to pay $525 in addition to the $25 that has already been paid and for which I hold a receipt. The remaining $1700 to be applied on a mortgage to run two and one-half years,and to bear four and one-half per cent interest.

This information I have forwarded to Mr.Preston and I am waiting for the papers.upon the receipt of them I will come over to New York and we can then complete the matter.

Yours truly,

James V. Phillips

MRS. HENRY T. CHAMPENY,

309 WEST 78th STREET,

NEW YORK CITY,

N.Y.

Nov. 18th, 1909

Mr. W.A. Preston,

New Ipswich, N.H.,

Dear Sir,

I return herewith properly executed the mortgate on the Gibson Place, which reach me safely on the afternoon of the 16th.

In this connection I desire to state that I understand that you will have the deed for the place recorded. If so let me know.

Yours truly,

James W. Phillips

Nov.22,1909.

Mr.William A.Preston,

New Ipswich,N.H.,

Dear Sir,

I beg to acknowledge the receipt of your letter of November 19th, in which you state that Mrs Champeny turned over to you the keys of the Gibson Place.

I desire to state that I have engaged Mr.N.A.Tuttle of Temple N.H to make certain repairs during this winter and should Mr.Tuttle apply for the keys will you kindly let him have in order that he may gain access to the house to make the repairs.

I will advise Mr.Tuttle accordingly.

Yours truly,

James W Phillips

MR.WILLIAM A. PRESTON,

NEW IPSWICH,

NEW HAMPSHIRE.

Nov.24th.1909. 88

Mr.F.A.Tuttle,
Temple,N.H.

Dear Sir

Sometime ago I wrote you relative to the repairs to the shetters on the Gibson house at New Ipswich,which Mrs Phillips arranged with you to repair and paint for us during this winter, and up to the present writing I have received no reply.Thinking that you have not received my letter I write again to advise you to go on and make the repairs to the shetters and paint them shutter green.

You can get the keys of the house from Mr William A. Preston of New Ipswich,as I have advised him that you were going to make some repairs to the house for us,and when you applied for the keys to let you have them,when the repairs are completed please return the keys to Mr Preston.

Will you kindly give me an estimate for painting the house and barn with two coats of white paint. You to furnish the labor and brushes and I will furnish the paint and oils.

If you do not do this kind of work can you get some good reliable person that does to give me an estimate.

Yours truly,
James Phillips

608 Cheltenham Ave.Oak Lane Phila.Pa.

MR. F.A. TUTTLE,
TEMPLE,
NEW HAMPSHIRE.

Dec. 2, 1909.

Mr. William A. Preston,

New Ipswich, N.H.,

Dear Sir:

Enclosed please find deed for the Gibson Place properly executed. I would ask that you have it properly recorded, for Mrs. Phillips.

I understand from Mrs Champeny that you have the keys, and that she will forward you the fire insurance policy in order that it may be properly transfered to Mrs. Phillips as per agreement.

I desire to state that I do not want the keys given to any person unless they have a written order from me, unless it is Mr. Tuttle while he is making repairs, and I will instruct him to return the keys to you when he has completed the repairs.

Yours truly,

James W. Phillips

Philadelphia, Pa., Feb. 5th, 1910.

Mr. F. A. Tuttle,

Temple, N.H.,

Dear Sir;

Your letter of January 17th, enclosing bill for repairs to the blinds on the Gibson house awaited my return home, and in reply I would state that Mrs. Phillips will be in New Ipswich in April next, at which time she will settle for the same, as she desire to see you about other work.

Yours truly,

James W. Phillips

MR. F. A. TUTTLE,

TEMPLE,

NEW HAMPSHIRE.

question is to get a desirable one, and I would not recommend any one unless they were a desirable party & able to meet their obligations as I know they can.

Trusting you will write them at once & that you so advise me.

Yours truly

James P. Philips

April 25

Rev. C. H. Rowe,
540 DeKalb Street,
Norristown, Pa.,

Reverend Sir:

I saw Mr F. H. Stier the gentleman I spoke to you about when in this A. M. and he advises me if you are willing to finish another room in the third floor his family will be glad to take the house.

Mr Stier is a personal friend of mine, as we have been thrown together in business for the past six years and he has a very nice family. I can cheerfully recommend them to you as a very desirable tenant.

I understand that Mrs Stier is very much interested in church work in the Colony M. E. Church this City.

I think it will be to your interest to communicate with them and you can deal direct.

Your tenant to be good but the

May 2

Rev. C. H. Rover,
Norristown, Pa.

Reverend Sir:

I have forward you under separate cover the key for the front door, and I find there are two keys to the door.

Mr William Parker who lives in one of Mr Everheart's houses on the opposite corner ask me for the other key so as to look at the house. Mr Parker I think will like the house & I know he will be a very desirable tenant. (only two in family) You might call & see Mrs Parker if you live in Oak Lane soon.

Mr Shier is still considering the proposition as he came out with his new top yesterday.

If you need at any time the services of a mechanic in making repairs or fixing I will be glad to give you any information I have.

Yours truly
James W. Phillips

Philadelphia, Pa.

May 2nd, 1910.

Mr. J. E. Bouichou, Special Agent,
Travelers Insurance Company,
415 - 417 Walnut St., Phila.

Dear Sir:

Referring to your letter to me under date of January 6th, last, I note that you state your representative Mr. James Dixon will call upon me to explain certain features of your Accident and Health Policy.

Up until the present time I have not had the pleasure of interviewing Mr. Dixon and would be glad to have him call upon me or to have you send me such data as may relate to the new features of the above policy, the circular enclosed with your letter not giving any idea of the nature of the features in question.

Yours truly,

James W. Phillips

Asst. Engineer in Charge.
Grade Crossing Division.
Room 767, City Hall.

, May 24th.1910.

Mrs.Henry T.Champney,

New Ipswich,N.H.,

Dear Mrs.Champney,

Will you kindly have the mortgage papers at New Ipswich so that they can be properly endorsed with the interest paid. This should be done every time there is a payment made.

Referring to the wagon you spoke to me about I desire to state that I will take the Democrat and farm wagon if you will sell them for fifteen (15) dollars each.

In reference to the other wagons being in the barn on the Gibson place I desire to state that they are there at your risk and if anything happens to them it will be at your risk.

You advised Mrs.Phillips that all matters had been taken out of Mr Champney's hands and that he could not sign his name to any thing.Will you kindly advise who is the proper one authorized to transact buisness with in connection with the place.

yours truly,

James Phillips

Philadelphia,Pa.,

June 14th.1910.

Public Ledger;

Enclosed please find twenty=five cents in stamps,for which please forward the Public Ledger for one month to; Mrs.James N. Phillips, New Ipswich,N.H. Box 19.

Yours truly,

James N. Phillips

6633 North 8th.Street.

Philadelphia, June 21st, 1910.

Mr. J. B. Warrington,
Superintendent, P. & R. Ry. Co.,
Reading Terminal, Phila.

Dear Sir:

This will be handed to you by Mr. Joseph Chedwick of 1909 E. Cumberland Street, who desires to obtain a position as fireman with your Company.

Anything you can do for Mr. Chedwick in this matter will be greatly appreciated.

Yours truly,

James R. Phillips

Asst. Engineer in Charge.
Grade Crossing Division.

June 24th, 1910.

Ticket Agent,

Boston & Maine R.R.Co.,

171 Broadway,New York.

Dear Sir:

Will you kindly forward me a time table giving the arrival and departure of trains between Worcester,Mass and Ayer Jct.Mass.,Also between Ayer Jct.Mass and Greenville,N.H.

Please advise me as to the single rate between Worcester and Greenville,also the excursion rate and how long good for.

If your Company sell tickets from N.Y.City through to Greenville N.H.,please advise as to rates,and how long good for.

Yours truly,

James Phillips

Ticket Agent,

Boston & Maine, R.R.Co.,

171 Broadway,New York City,

N.Y.

Philadelphia, Pa., August 11th. 1910.

Messrs. Strawbridge & Clothier,
8th. & Market Streets,
Philadelphia, Pa.,

Gentlemen:

I beg to acknowledge the receipt of my bill for the month of July in which you state that the amount owning is $14.44.

In reply I would state that under date of June 15th. last I purchased the following:

1 Rug.....$1.25
1 " $2.00
1 " $2.50
.....
$5.75

The above to be forwarded by freight to Mrs. James W. Phillips. Greenville, New Hampshire. up to the present writing the rugs have not been received.

I have taken this matter up with your Bureau of Adjustments at several different times, and I was informed that I would receive due credit for the amount on my next bill.

I am therefor returning the bill for July for correction.

Yours truly,
James W. Phillips

Address;
6633 N. 8th. Streets.
Oak Lane, Pa.

Philadelphia, Pa., Oct. 17th. 1910.

Mr. Benno Kirschbaum,

1535 Chestnut, Street,

Philadelphia, Pa.,

Dear Sir:

I beg to acknowledge the receipt of your circulars announcing the "Phonograph Method" of teaching languages, and in reply will state that I will cheerfully recommend it to all my friends.

I also note the enclosure, giving the itenerary for a personal conducted tour through Europe, next summer.

With such an able and affiable conductor it can not other than a delightful tour for all who has the good fortune to make up the party, and I regret very much that business does prevent me being one of the party.

Whatever I can do for you in either matter will be done cheerfully.

With the best wishes for your success in business, I am,

Yours truly,

James W. Phillips

Philadelphia,Pa.,Nov.9th.1910.

Mrs.Henry T.Champney,

New Ipswich,N.H.,

Dear Mrs.Champney,

Will you kindly advise me where I can see you on November 18th, next,as I want to see you in relation to matters of the Gibson Place.

On that date will you kindly have all the papers relating to the Gibson Place present.

Yours truly,

James W. Phillips

Address;

3417 North 22nd,Street,

Phila., Pa.

Philadelphia, January 6th, 1911.

Mr. Walter S. French,

Moorestown, N. J.

Dear Sir:

Will you kindly arrange, if possible, to meet me at 1 o'clock on Monday, January 9th, 1911, in Room 767 City Hall, to further take up the matter in hand.

If you have any detail information that you have not presented will you kindly bring it with you at that time.

If you are unable to keep the above appointment kindly advise me stating as to when it will be convenient for you to see me.

Yours truly,

James T. Phillips

Asst. Engineer in Charge.
Grade Crossing Division.

Mr. Walter S. French,

Moorestown,

N. J.

Philadelphia, February 7th, 1911.

Dr. Gilbert J. Palen,
1833 Chestnut Street,
Philadelphia, Pa.

Dear Sir:

Replying to your letter of February 4th, relative to payment of account for professional services, I desire to state that I hold a receipt dated December 31st, 1910, signed by G. J. Palen per C., covering payment of the account referred to in your letter as above.

Yours truly,

James W. Phillips

Dr. Gilbert J. Palen,
1833 Chestnut Street,
Philadelphia, Pa.

February 25, 1913.

Sub. Grade C. & N. Elevated.
Copy, Cement-Concrete Age.

Mr. Allen Brett,

Managing Editor,

Cement-Concrete Age,

Dear Sir:

The marked copy of the February issue of the Cement-Concrete Age came to hand this date. Please accept my thanks for same.

While attending the Convention of the Association of the Cement Users, at Pittsburgh last December, you stated that you had forwarded to me a check, I desire to state that it has fail to materialize,

Yours truly,

James B. Sheafe

Assistant Engineer-in-charge,
Abolition of Grade Crossings

Mr. Allen Brett,

Cement-Concrete Age,

97 Fort Street West,

Detroit, Mch.

Philadelphia, Pa., Nov. 16, 1914.

Mr. Frank L. Ellis,

1416 Sw. Penn Square,

Philadelphia.

Dear Sir:

In reply to your letter of November 13th, I desire to state that as I was notified yesterday (November 15th) to vacate the apartments which I now occupy at 1518 Green street, I will proceed to do so on December 1st next. By that time will pay all rent due you.

For your information I desire to state that we have been subjected to considerable abuse from the caretaker when we asked for what was justly due us in the way of hot water and heat.

Through the neglect of the caretaker both Mrs Phillips and myself are sick with heavy colds.

Such treatment from the caretaker's will not keep tenants.

Yours truly,

James W. Phillips

Philadelphia, Pa., Nov. 16, 1914

Mr. Frank B. Ellis,

1416 So. Penn Square,

Philadelphia.

Dear Sir:

In reply to your letter of November 13th, I desire to state that as I was notified yesterday (November 15th) to vacate the apartments which I now occupy at 1518 Green street, I will proceed to do so on December 1st next. By that time will pay all rent due you.

For your information I desire to state that we have been subjected to considerable abuse from the caretaker when we asked for what was justly due us in the way of hot water and heat.

Through the neglect of the caretaker both Mrs Phillips and myself are sick with heavy colds.

Such treatment from the caretaker's will not keep tenants.

Yours truly,

James A. Phillips

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Philadelphia, Pa., December 16, 1[illegible]

Mr. George M. Kendall,

30 Church Street,

New York City, N. Y.,

Dear Sir:

I have passed through New City several times in the past year but each time was pressed for time I was unable to call in and see you.

Thingd in this city at present look rather dull and I am on the lookout for something more promsing, and there is anything that comes under your notice, you would confer a favor by droping me line

I spent Thanksgiving day with the family and Mrs. P. was wondering what has become of Mrs K. as she has not heard from her for sometime, she has lost your home address. and would like very much to have it. If you will send it to me I will see that she get it.

Mrs. P has not been very well for sometime, in fact since last May, but is feeling a little better now since the cold waether has come.

I hope this finds your family all well.

Yours truly,

James W. Phillips

Address;
412 City Hall.
Phila. PA.

Mr. George M. Kendall,

Room 533 Cortland Building,

30 Church Street,

New York City,

N. Y.

Philadelphia, Pa.,

November 25th. 1911.

Mrs. Henry T. Champney,

309 West 78th, Street,

New York City, N.Y.,

Dear Mrs. Champney:

Under date of November 16th, last I wrote you enclosing a check for Thirty-eight dollars and twenty-five cents ($38.25) for payment of interest on the Gibson Place N.H. The check enclosed was forwarded by registered letter and I was duly notified that you had received the same. Up to the present writing I have not received an acknowledgement of the check nor have you returned the receipt, that was enclosed, properly signed by yourself and Mr. Champney.

I will be pleased to receive the receipt properly signed at an early date.

Yours truly,

James W. Phillips

Address; 3417 North 23nd. Street.

Mrs. Henry T. Champney,

309 West 78th. Street,

New York City,

N.Y.

J. W. Phillips.

November 16, 1911.

Mrs. Henry T. Champney,
309 West 78th. Street,
New York City, N.Y.,

Dear Mrs Champney,

I enclose herewith a check for Thirty-eight dollars and twenty-five cents ($38.25) for interest due November 15th, next on Gibson Place. I also Enclose herewith a receipt which you and Mr Champney plese sign and return to me.

Owing to the pressure of buisiness I will be unable to come over as I expected.

Yours truly,

James W Phillips

Address,
3417 North 22nd Street.

Mrs. Henry T. Champney,
309 West 78th, Street,
New York City, N.Y.

J. W. Phillips

Philadelphia, Penna.,

November 12, 1911.

Mrs. Henry T. Champney,

New Ipswich, N.H.,

Dear Mrs. Champney:

Will you kindly advise me where I can see you on or before November 18th next relative to matters of the Gibson Place.

Yours truly,

James W. Phillips

Address;
3417 N. 22nd. Street,
Philadelphia, Penna.

November 7th, 1911.

Mrs. Henry D. Champeny,
308 West 79th, Street,
New York City, N.Y.,

Dear Madame:

Will your kindly advise me where I can see you on November 18th, next.

Yours truly,

James V. Phillips

Address:
3417 North 22nd Street,
Philadelphia, Pa.

Mrs. Henry T. Champeny,
309 West 78th, Street,
New York City,
N.Y.

J. V. Phillips.

Philadelphia, Pa., June 1st. 1911.

Messrs. Strawbridge & Clothier,

8th. & Market Streets,

Philadelphia, Pa.,

Gentlemen:

On May the 20th. I purchased from your store the following bill of goods, to be forwarded to Mrs. James W. Phillips, Greenville, New Hampshire, and charged to myself;

2 counterpanes.
6 sheets.
1 dozen wash rags.
1 enamel bedstead.
2 springs.
1 mattress.
1 roll, china matting.

Also on May the 23rd.;

16 yards of dress goods.
1 remanent of dress goods.

Up to the present writing the above goods have not been received, and I would ask that you kindly advise me whether these goods have been shipped and how shipped.

Yours truly,

James W. Phillips

Residence;

3417 N. 22nd Street,

Phila., Pa.

May 17th. 1911.

Subject:
Overcharge of Fare.
New York to Greenville,N.H.

Mr.A.B.Smith,

General Passenger Agent,

New Haven Conn.,

Dear Sir;

On the morning of May 6th.last I purchased a one way ticket between New York and Greenville N.H. from your Ticket Agent in the Grand Central Station N.Y., for which he charged me $6.15.

On my return from Greenville,N.H. on May 9th. I purchased my tickets as follows;

Greenville to Worcester Mass.,	$1.31
Worcester Mass to New york	$4.05
Total	$5.36

Making a difference of 79 cents less than was charged me by your agent in New York

As the new schedule of rates did not go into affect until May 14th. I would ask that I be refunded the excess charge of 79 cents.

Yours truly,

James W Phillips

Assistant Engineer.

Form P. 200

The New York, New Haven and Hartford Railroad Company

GENERAL PASSENGER DEPARTMENT

File P-6-L

New Haven, Conn. July 7, 1911.

Mr. Jas. W. Phillips, Asst. Engineer,
Bureau of Surveys, Dept. of Public Works,
City Hall, Philadelphia, Pa.

Dear Sir:

Having further reference to your favor of May 17th, relative to the purchase at New York of a ticket to Greenville, N. H., at the rate of $6.12:

In reply, beg to advise that the fare charged you was the only legal fare as authorized by our tariff then in effect, and in order to show you clearer our position in the matter, we quote to you below our letter to the Interstate Commerce Commission and the Commissions reply:

#P-6-K June 20th, 1911.

Interstate Commerce Commission,
Washington, D. C.

Gentlemen:

In our tariff I.C.C. 966, effective Dec. 16, 1910, this Company shows a fare of $6.12 from New York, N. Y. to Greenville, N. H. via Worcester and Ayer - the N.Y.N.H.& H. and B.&.M.R.R.

In compilation of this fare, the compiler used our local rate New York to Worcester, $4.05, plus the B.&.M. rate of $2.07 from Worcester to Greenville via Gardner and Ayer - the circuitous route - nothwithstanding the fare from New York to Greenville was intended to apply via Worcester and the short line through Ayer.

The sum of the locals on Worcester via the short line yields a rate of $5.36, and on account of this we now have claim from a Mr. Jas. W. Phillips, Asst. Engineer, Bureau of Surveys, Dept. of Public Works, Philadelphia,

Mr.J.W.Phillips, P-6-L 7-7-11.

for refund down to the rate he would have enjoyed had our aforesaid tariff quoted the short line charge.

Under date of June 14th, 1911 this Company petitioned you to authorize correction in the tariff without the ordinary statutory notice of thirty days, and we would therefore ask if consistent that you please extend authority to grant refund as applied for.

Yours truly,
(signed) A. B. SMITH
General Passenger Agent.

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(R E P L Y)

INTERSTATE COMMERCE COMMISSION

HCW/LWF Washington, June 24, 1911.

Mr. A. B. Smith,
General Passenger Agent,
The New York, New Haven and Hartford R.R.
New Haven, Conn.

Dear Sir:

The Commission is in receipt of your letter of the 20th instant, file P-6-K, in regard to the claim of Mr. J. W. Phillips, for refund of passenger fare based on a reduced rate established after purchase of his ticket.

In reply you are referred to rule 46, Conference Rulings Bulletin No. 5, wherein it is stated that the rules of the Commission relating to reparation on informal complaints do not extend to passenger traffic and that the Commission will not entertain applications for authority to refund on passenger tickets on the ground that the fare was reduced shortly after the ticket was sold.

Yours truly,
(signed), JUDSON C. CLEMENTS
Chairman.

Yours very truly,
A. B. Smith
General Passenger Agent.

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April 22nd. 1911.

Mr. George M. Kendall,
30 Church Street,
New York City,

Dear Sir;

I beg to acknowledge the receipt of your letter of the 20th. instant, and am sorry to hear that you have been sick!.

I am feeling better than when you last saw me, but am not entirly over the attack of the grippe.

I will endevor to come over to New York some time the 1st of May, but will advise you a few days before, so that you will be in.

I am expecting to make a visit to New Hampshire the begining of the month, and then I will stop off to see you.

Give my regards to the family.

Yours truly,

James W. Phillips
Asst. Engineer-in-charge.
Abolishing Grade Crossing

Mr. George M. Kendall,
30 Church Street,
New York City.
N. Y.

Philadelphia, Pa., March 14, 1911.

John M. Thissel Esq.,
Land Title Building,
Phila., Pa.,

Dear Sir,

Enclosed please find, in cash, the amount of the enclosed bill in favor of Dr. William L. Franck.

Please acknowledge the receipt of same, and also have the bill receipted and returned to me.

Yours truly,

James W. Phillips

Address 410 City Hall.

John M. Thissel Esq.,
Land Title Building,
Phila., Pa.

Philadelphia, Pa., Febuary 28, 1911.

Mr. I. V. Jones,

Broad & Market Streets,

Newark N. J.,

Dr Sir:

Referring to the payment of premium on my life policy
#14977 I would ask that if it is possible for me hereafter to make
he to the Philadelphia office of your Company,

Will you kindly advise in this matter.

Yours truly,

James P. Phelps

om 412 City Hall.

Philadelphia, February 23, 1911.

Mr. George M. Kendall,

533 Cortlandt Building, 30 Church Street, New York.

Dear Sir:

Will you kindly advise me as to what time next week I will be able to see you by calling at your New York office.

Yours truly,

James W. Phillips

Asst. Engineer in Charge.
Grade Crossing Division.
767 City Hall, Phila.

Mr. George M. Kendall,

533 Cortlandt Building,

30 Church Street, New York,

N. Y.

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April 19 1910.

Mr.W.A.Preston,

New Ipswich,N.H.,

Dear Sir:

Will you kindly engage Mr.Hudson to haul the household goods from Greenville to The house.Goods will leave here on April 30th and will arrive in Greenville about the following Thursday.

Also if Mr Hudson can do plowing please engage him for me to do it the same week as the goods arrive.

In this connection I desire to thank you for your passed kindnesses,while thanking you for the above,

Yours truly,

James W Phillips

MR. W. A. PRESTON,

NEW IPSWICH, N.H.

March 23rd.1910.

Mr.W.A.Preston,

New Ipswich,N.H.,

Dear Sir:

Will you kindly forward to me at my expense the keys belonging to the Gibson house and barn.

Yours truly,

James W Phillips

MR. W. A. PRESTON,

NEW IPSWICH,

NEW HAMPSHIRE.

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March 11 10

Rev C H Rover,
Morrstown, Pa.,
Reverend Sir:
Enclosed please find Money Order for thirty-one (31) dollars for rent of property at Oak Lane.
I will endeavor to forward you some more during the month.
It is my understanding that you have decided to rent the property after May 1st at an advance rental of $35 per month: and relieve me of the care at that time, to my understanding correct.

Yours truly,
James W. Kelly

Rev C. H. Rover
520 De Kalb St

March 11th.1910.

Rev.T.W.Pearson,

North Warren,Pa.,

Reverend Sir:

I desire to advise you that we have decided to break up housekeeping by the 21st of April next,and it will incumberant upon you to provide for your mother-in-law Mrs. M.W.Larimer on and after that date.

Please give this matter your prompt attention in order that she will be ~~a~~ away from here by the first week in April next.

Yours truly,

James B Phillips

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March 3rd, 1910.

Mr.W.A.Preston,

New Ipswich,N.H.,

Dear Sir:

Mrs.Champney advises me that she has forwarded to you the fire insurance policy on the Gibson place in order that you may have it properly transferred to Mrs.S.E.Phillips.

I desire to be advised if this matter has been placed in your hands for the transfer as the family will take up their residence in New Ipswich on or about May 1st.next, and I desire to have this arranged before that time.

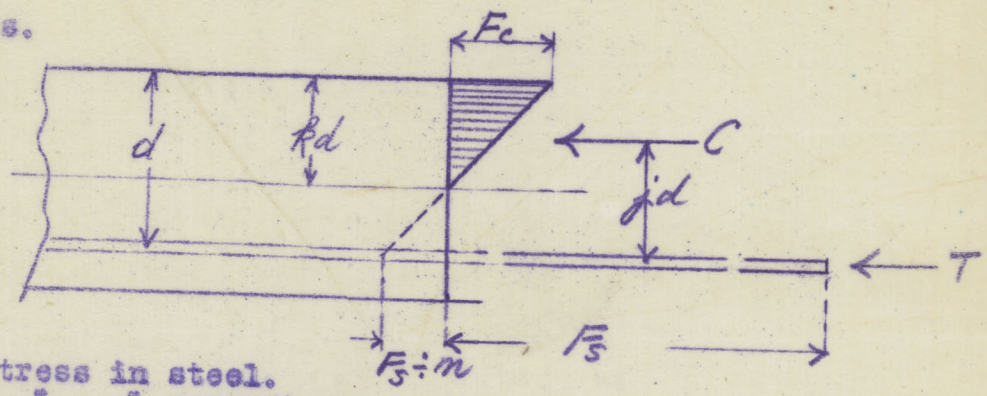
Can you advise as to whom I can get to take the goods from Greenville to the house.

Yours truly,

James W Phillips

REINFORCED CONCRETE BEAMS.

Rectangular Beams.



Notation:

Fs.= unit stress in steel.
Fc.= " " " concrete.
Es.= modulus of elasticity of steel.
Ec.= " " " " concrete.
n. = $\frac{Es.}{Ec.}$
T. = total tension
C. = " compression.
Ms.= moment of resistence relative to steel.
Mc.= " " " " " concrete.
M. = bending momentor moment of resistence in general.
A. = area of steel.
b. = breadth of beam.
d. = net width of beam.
k. = ratio of depth of neutral axis to depth.
j. = " " lever arm of resisting coulpe to depth.
p. = steel ratio $\frac{A}{bd}$.
Rs = Fs p j = coefficient of strength relative to steel.
Rc.= 1/2Fc k.j = coefficient of strength relative to concrete

POSITION OF NEUTRAL AXIS:

(1). $k.= \sqrt{2pn+(pn)^2}-pn.$

ARM OF RESISTING COUPLE:

(2). $j.= 1-1/3k.$

MOMENT OF RESISTENCE:

(3). $Ms.= Fs.p.j.\ bd^2 = Rs.\times bd^2$

(4). $Mc.=1/2F.k.j.\ bd^2= Rc.\times bd^2$

FORMULA:

CASE I.

Neutral axis in the flange;

Use formulas (1) to (9) as for retangular beams; formula (1) for x. will determine whether the case is Case I or II.

APPROXIMATELY:

$M_s = f_s A (d - 1/3t)$

$A = \frac{M}{f_s(d - 1/3t)}$

CASE II.

Neutral axis in the web; compression in the web neglected.

POSITION OF NEUTRAL AXIS:

$c = \frac{2nd A + bt^2}{2(nA + bt)}$

POSITION OF RESULTANT OF COMPRESSIVE STRESS:

$x = \frac{3c - 2t}{3c - t} \quad \frac{t}{3}$

MOMENT OF RESISTANCE:

$M_s = f_s A(d - x)$

$M_c = f_c \frac{(c - 1/2t)bt}{c}(d - x)$

APPROXIMATELY:

$M_s = f_s A(d - 1/2t)$

$M_c = 1/2 f_c bt(d - 1/2t)$

STEEL AREA:

$A = \frac{M}{f_s (d - t)}$

APPROXIMATELY:

$A = \frac{M}{f_s(d - 1/2t)}$

TENSIL STRESS:

(5). $Fs. = \frac{P}{A} = \frac{M - jd}{A}$

(6). $Fc. = \frac{2P}{bkd} = \frac{2M - jd}{bkd}$

STEEL RODS:

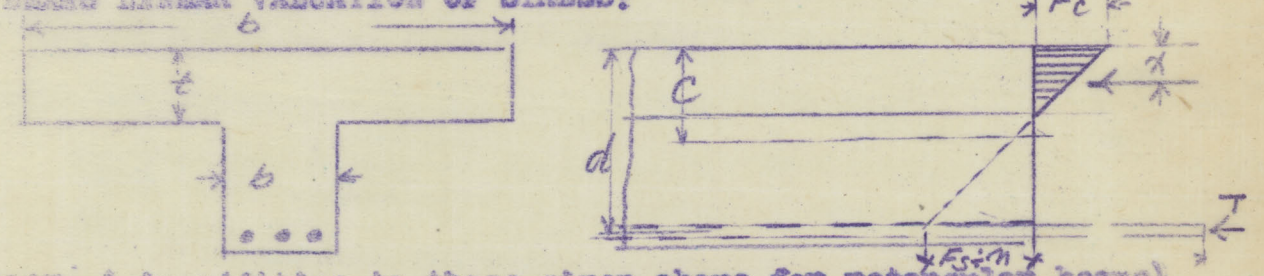
(7). $p = 1/2 \quad \frac{1}{\frac{Fs.}{Fc.} \quad \frac{Fs.}{nFc} \quad 1.}$

CROSS SECTION OF BEAM FOR GIVEN BENDING MOMENT "M"

(8). $bd^2 = \frac{M}{Fs\ p\ j} = \frac{M}{Rs.}$

(9). $bd^2 = \frac{M}{1/2Fc\ kj} = \frac{M}{Rc}$

"THE BEAMS LINEAR VALUATION OF STRESS:



NOTATION; (in addition to those given above for retangular beams)

b = width of flange.
b' = " " web.
t = thickness of flange.
c. = depth of neutral axis.
C = " resultant of compressive stress.
d-x. = arm of resisting couple.

FORMULA:

CASE I.

PHILADELPHIA, PA., Jan. 29, 1910.

Mr. H. F. Cutler,

Mount Hermon,

Mass,

Dear Sir,

Your letter of January 3rd, last awaited my return home, and in reply would state that it is not my purpose to enter my son Jay in the Mount Hermon Boys' School this coming spring, as I have made other arrangements for him.

Yours truly,

James P. Phillips

PHILADELPHIA, PA. Jan.29th, 1910

Mrs.Henry T. Champney,

309 West 78th.Street,

New York City,

Dear Mrs.Champney,

When in New York City on November 30th last it is my understanding that you would forward the insurence policy on the "Gibson Place" to Mr.Preston in order that it could be properly transferred to Mrs.Phillips.

Up to the present writing I have not received the policy properly transferred, and I desire to stste that if you have not done so will you forward it to me and I will attend to the transfer.

You also stated that you would forward me a list of articles in the Gibson house. Will you kindly forward it at the same time you do the pilicy.

I desire these as I am making arrangements to forward some things to New Ipswich soon, and I desire to know what I will need to include.

Cam you advise as to the better of the two cities Boston or New York for shopping, and which are the best houses to do shopping in,

Trusting this finds all well as it leaves us, and with kind regards to Mr Champney,

I am yours truly,

James W. Phillips.

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Jan.5th.1910.

Mr.W.A.Preston,

New Ipswich,N.H.,

Dear Sir:

Your letter of January 1st.with enclosure received. I note that you enclosed my letter to you of December 2nd.1909, which I return herewith.

Enclosed please find a money order for one dollar and forty cents (1.40) for services rendered.

When I was in New York on November 30th last Mrs Champeny promised to forward to you the fire insurance policy to have the same properly transferred,as yet I have not received word to that effect. I will write her and have the same forwarded to me.

Yours truly,

James W. Phelps

Sept. 24th, 1908.

Messrs Vroom, Dickinson & Scammel,
Mechanics Bank Building,
Trenton, N.J.,

Gentlemen, I beg to acknowledge the receipt of your letter of Sept. 21st. with an enclosed check for $139.74 in-re Estate of Francis N. Phillips.

Yours truly,

James W. Phillips

September 19, 1908.

Subject: In re-Francis Phillips Estate.

Messrs. Vroom, Dickinson & Scammel,
Mechanics Bank Building,
Trenton, N.J.,

Gentlemen,

your letter of August 27th, enclosing a receipt for my share of the Estate of Francis H. Phillips was duly received, and was properly signed on behalf of my wife and myself and then forwarded to Mr. Hugh Hamill at his office in the Trenton Trust & Safe Deposit Company's Building.

I desire to state that up to the present I have not received a reply to the same.

Yours truly,
James V. Phillips

Residence address,
502 Cheltenham Avenue,
Oak Lane, Phila., Pa.

Messrs Vroom, Dickinson & Scammel,
Mechanics Bank Building,
Trenton, N.J.

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MRS. CHARLES F. GRISWOLD,
RANDOLPH,
VERMONT.

July 16 8

Mrs Charles F. Griswold,
Randolph,
Vermont,

Dear Mrs Griswold,

Will you kindly advise me as to whether you can accommodate my family during the month of August. The family is composed of my wife, one girl 12, and one boy 7.

Kindly give me your terms for the family.

I desire to state that I selected your place from amongst various others out of the book called "Summer Home in Vermont" issued by the Vermont Central Railroad.

My family are quiet, and should you desire references I will be pleased to furnish same.

Yours truly
James W. Phillips

Address
Room 412 City Hall.

June 10, 1908.

Rev. C. H. Rerer,

Columbia, Penna.,

Revered Sir,

I desire to call your attention to the precarious condition of the drainage at Oak Lane house.

Will kindly have this attended to at once as it is endangering the health of my family.

If it is not remedied very soon I will be compelled to take steps to have it remedied.

Yours truly,

James W. Phillips

May 23, 1908.

Dr. E. L. Parks,
419 Boylston Street,
Boston Mass.,

Dear Sir,
I note in today's issue of the Philadelphia Public Ledger that you advertise for rent a partially furnished summer cottage situated at Peterboro N.H.
Will you kindly give me particulars as to situation and water, in fact full particulars as to the place.
Last summer I rented a Cottage at New Ipswich N.H. and my family was so much benefited by the change I desire to give them the same this summer.

Yours truly,
James W. Phillips

May 16, 1908.

Rev. C. H. Rorer,

Columbia, Pa.,

Reverned Sir, Enclosed please find money order for sixty-two(62) dollars for rent of property at Oak Lane.

Mr. Jones has placed the bathroom fixtures and we are very much pleased with them, and Mr. Overpeck has repaired the fence and board walk. The outer well in the yard overflows and the odors from it are so offensive, that I fear some serious results. This should receive immediate attention. Will you have some one to look into this as soon as possible. I desire also to call your attention to the condition of the chemney, the bricks are in such a condition that the birds are building their nest in the openings, and a high wind will cause them to fall and endanger our lives, as well as damage the roof.

Your truly,

James W. Phillips

May 7, 1908.

Mr. Alex. Mcalpin Phillips,
508 West State street
Trenton, N.J.,

Dear Sir,

I have been expecting word as to sub some of the disposal of the real estate of Aunt Nannie for some time and as yet I have not heard when the sale of the farm is to be and if it was sold I have had no word from any one as to the time the sale took place. What do you know of the matter.

I will not be able to be away from Philadelphia during the coming summer, as the work on which I am engaged will keep me close at hand for some time.

Yours truly,

James A. Phillips

Oak Lane, Pa., April 8, 1908.

Mr. W. F. Ziegler,

Elkin's Park,

Penna.,

Dear Sir,

I have your letter of the 6th, instant, in relation to my son, who is a pupil in the Cheltenham School, and in reply to your first complaint, as to his rudeness to his teachers, I would state that he is not a boy that will return politness by rudeness, and I can not believe that such is the case, as he always speaks of his teachers with the greatest respect.

This the first time that he has been accused of such conduct.

As to your threat of discontinuing his dra wing lessons, do you think it just to both.

You state that you will suspend him indefinitely, on that point I desire to call your attention to the fact that he is a paid scholar and the tuetion has been paid for the term, and in case you carry your threat into execution I will at once demand a pro rata of the amount refunded by the Board.

In regards to the report, I think that you are mistaken, as if will take the trouble to look the matter up you will find that his mother has signed the former reports.

Yours truly,

George W. Macafee

March 14th., 1908.

Mr. T.B.Durling,
Pennington, N.J.

Dear Sir,
I received your note of march 10th., together with the package containing the spoons.
In relation to the articles that you sold during the sale of my aunt's chattels I would say that one was a yellow bedstead and springs that was in the upstairs back room and they were bought by Mr Thomas Lanning for $2.50
The other article was a bicycle which belong to my son Jay and it was sold for 75 cents.
I see no reasons why you should not settle for these goods, and I think it is very strange that you have no account of the articles
Please let me hear from you at once in relation to them.

Yours truly,
James W. Phillips

March 6,1908.

Mr. T. D. Durling,

Pennington, N. J.

Dear Sir,

Sometime ago I wrote you in relation to the silver spoons that my daughter Ethyl heired from her Aunt Fanny Phillips, instructing you to express them to my address Oak Lane Penna., and up to the present time I have not heard from you. Will you kindly give this matter your immediate attention.

I also desire to call your attention to the letter Mrs. Phillips wrote you in relation to the proceeds of the goods that you sold at my aunt8 sale in September, as yet you have not made a settlement for them. I beleive she wrote you the amount of the sale and ask that you make a settlemrnt for them. Will you give this matter your immediate attention.

Yours truly,

James W. Phillips

Feb. 18, 1908.

Rev. G. H. Rorer,

Columbia, Penna.,

Reverend Sir,

I have your note of Febuary 10th., in relation to the amount of repairs to the property at Oak Lane, and in reply would state that cost of the repairs in the bathroom depends on the type of fixtures you will be willing to put in. The bathroom needs a new tub, washstand and trap. This could be done in the summer, and as to the cellar being cemented it could be done in the fall of the year. I will make the repairs to the out kitchen, so that it will freeze in it.

There are a great many houses to rent in Oak Lane this spring and it is due primarily to the increase of fare on the railroad.

In my judgement the cost of the repairs that I have asked for will amount not more than $175.00, and if you had a new tenant it would amount a great deal more.

I notice that the fence between Mr. Barr's and in the rear of the lot has blown down.

Trusting that you would rather do the repairing that I have asked for and accept the three years lease for me,

I am yours truly,

James W. Pharo.

Feb. 7, 1908.

Rev. G. H. Rorer,

Columbia, Pa.,

Reverend Sir,

Enclosed please find thirty (30) dollars for rent of property at Oak Lane.

As to renewing the lease for another period I would state that I will agree to rent the property for term of three years from April 1st. 1908. for thirty-one (31) dollars per month this amount to include the water rent; PROVIDING that you place new bathroom fixtures, repair the out kitchen so that it can be used in the winter season and cement the cellar, as well as remedy the drain pipe so that we will not be annoyed every time it rains by the water coming into the cellar.

Yours truly,

James W. Phillips

Feb. 6, 1908.

Rev. C. H. Rerer,
Columbia, Pa.,

Reverend Sir,

In reply to your note of January 13th, I would state that the repairs that Mr. Staniforth made to the drain pipe in the yard and those leading from the sink in house.

The repairs were made necessary from the fact that the wells in the yard were full and caused the solid matter to back up into the pipe drain and the sewerage found its way into the cellar and also into the well in the cellar. The odor was so offensive that the family was unable to remain in the house unless the windows were raised.

I find that it is caused by the water, during a storm, coming form the property next door and flowing across the yard into the wells in the yard, and the walls of the well under the outhouse are so low from the surface of the ground that it fills the well and causes the solid matter to back up into the drain pipe leading from the house.

This can be remedied by building the walls of the well under the outhouse up above the surface of the ground about one foot.

As to the excess of water used, I have found that when the water pipes and faucets are in good condition there os no excess of water.

For several years passed I have at my own expense a plumber to make repairs to the pipes and faucets.

Yours truly,
James W. Phillips

Dec. 20, 1907.

Subject;
Bill for removing goods.

Mr. Edgar G. Weart,
Princeton, N. J.

Dear Sir, Enclosed please find money order for three ($3.00) dollars for removing goods as per bill enclosed. Please receipt same and return to me. The goods did not come until last week.

Yours truly,
James W. Philips

Address Room 767 City Hall
Philadelphia. Pa.

Dec.7, 1907.

Rev. C. H. Rorer,

Columbia, Penna.,

Reverned Sir, Enclosed please find money order for thirty ($30) dollars for rent.

Will you have Mr Corbin to look at the range in the kitchen as the ashes fall down into the oven so that we can not use it for baking. It may be due to the condition of the bricks.

Yours truly,

James W Phillips

Rev. C.H. Rorer,

Columbia,

Penna.,

Nov. 22, 1907.

Messrs Young & Sons,

43 North 7th. Street,

Philadelphia, Pa.,

Gentlemen,

We have used a 22 inch Young &v Sons Improved Denison Level on the work of Abolishing Grade Crossings in this City for the past year and it has given entire satisfaction.

In point of accuracy and workmanship it has no equal.

Yours truly,

James W Phillips

Assistant Engineer-in-Charge,
Abolishment of Grade Crossings.

October 24 1907.

Messrs. Vroom, Dickinson & Scammell,

Attorneys-at-law.

Gentlemen:

I have your letter of October 22nd, and in reply would state that I had forwarded the paper to my wife for signature;-as she is travelling in the West, it will be a matter of ten days of the date of forwarding it before it will be returned to me.

I would state in advance of the receipt of the proper authority by you, that I have in that paper selected G. D. W. Vroom, whom I believe is a mamber of your Firm, and I understand that there will be no expense incurred chargeable to me for the appearance in the suit of Mrs. Helen M. Weber vs. Alexander McAlpin Phillips et al.

I would state that it was not my intention at any time to cause any delay or to do anything to defer the final settlement of the Estate of the late Frances E. Phillips.

Upon the receipt of the paper duly signed by Mrs. Phillips I will forward it to you.

Yours truly,

James W. Phillips

Oct.,10, 1907.

Rev. C. H. Beyer,

Columbia, Pa.,

Reverend Sir,

I desires to know what has become of the heater man as the cold weather is near at hand and there is no signs of the heater as yet. This matter was taken uo with yiu last spring and the whole summer has passed by without anything being done and I am getting out of patience with the progress that ids being made to place the house in such a condition as to make it comfortable. I waited for a week for some one to come to repair the drains and as no one came on tuesday Isent for Mr Staniforth and he found just what i have called your attention to some time ago and that was the walls are full and the solid materials back up into the pipes and do not permit the sewerage to pass out. The health of the family has been endangered by this for some time and it is time that something should be done to remedy it. The wells should looked after and the drain pipe leading from the bathroom should be repaired so the sewerage can not leak into the cellar, as it is now the odor is unbearable and the odors come up through the house and will cause sickness.

Please give these matters your attention at the earliest possible

Yours truly,

James W Phillips

Sept. 30, 1907.

Cheltenham & Jenkintown Ice Mfg., Co.,

Ogontz Penna.,

Gentlemen,

I have your letter of Sept. 23d., quoting me the price of coal delivered at my residence at Oak Lane,

Will you deliver 5 tons of pea and 5 tons of furnice coal, as to th the size of furnice coal I do not remember as to the size, but you can determine as to that by refering to my last order give to your Company last year.

This coal can be delivered any time during the month of October, and as the bins do not hold more than the 5 tons is the reason that I limit it to that amount. As to the furnice coal please send the hardest coal that you have.

Yours truly,

James W Phillips

August 26 1907.

Alex. McAlpin Phillips,

Trenton, N. J.,

Dear Mac, I have your letter of Aug. 24th. and I have signed the petition for your appointment as administrator of Aunt Fanny's estate.

In the same mail I received aletter from my wife in which Jay states that Aunt Fanny told him just how she wanted to be buried and where the keys to all of her papers were, and she showed him the will, only this spring. Jay knows a great deal about her affairs, as she seemed to confide in him. This is the first time that Jay has told either of us about the matter.

Yours truly,

James W. Phillips

PROPOSITION.

If equilateral triangles be erected on the sides of any triangle as A, B, C, see Fig.; and if the points X, Y, Z, the centers of gravity of these equilateral triangles be joined by straight lines, these lines will form an equilateral triangle whose centre of gravity coincides with the centre of the original triangle A, B, C.

May 18 1907.

Mr. W. F. Zeiglar,

Principal Cheltenham High School,

Elkins Park, Penna.,

Daar Sir,

Confirming my conversation with you sometime ago, I beg to state that you can offer a prize of five dollars in gold to any member of the senior class for the best solution by geometry of the within enclosed proposition.

This is with the express understanding that no name of the donor of the prize is given out.

Yours Truly,

James W Phelps

Feb. 28th., 1907

23

Grade Crossing Division

Feb 28th 1907

James W Phillips	Asst Engineer in Charge	250	00	1 mo.	250 00
Harry T Shelley	Asst. Engineer	150	00	1 mo.	150 00
Silas G Griffith	" "	150	00	1 mo.	150 00
Willis L Essen	Draftsman	83	33	1 mo.	83 33
William H Pavitt Jr.	"	83	33	1 mo.	83 33
Morris M Stringfield	"	83	33	1 mo.	83 33
Samuel S Blair	Transitman	70	00	1 mo.	70 00
Ernest F Page	Chainman	40	00	17 days	24 38
Geo. Rutherford	Tracer	75	00	21 days	56 25
Geo M Greene	"	75	00	10 days	26 78
		Total			977 50

Approved

James W Phillips

Asst. Engineer in Charge.

** COPY**

March 31 st., 1907.

23

abolishment of grade crossings

March 31st., 1907.

James W. Phillips	Asst. Engineer in charge	250	00	1 mo.	250 00
Harry T. Shelley	Asst. Engineer	150	00	1 mo.	150 00
Silas G. Griffith	Asst. Engineer	150	00	1 mo.	150 00
Willis L. Esson	Draftsman	83	34	1 mo.	83 34
William H. Pavitt Jr.	"	83	34	1 mo.	83 34
Morris M. Stringfield	"	83	34	1 mo.	83 34
Samuel S. Blair	Transitman	70	00	1 mo.	70 00
Ernest F. Page	Chainman	40	00	1 mo.	40 00
Geo. Rutherford	Tracer	75	00	1 mo.	75 00
Geo. M. Green	"	75	00	1 mo.	75 00
Lewis D. B. Scheurle	Apprentice with pay	30	00	25/31	24 19
	Total				1084 21

Approved
James W. Phillips
Copy

Dec 20th 6

Hopgoods'
Penna Bldg;
Phila, Pa;

Gentlemen

I have your letter of Dec 17th in relation to Mr Geo M Kendall; and in reply would state that I have known Mr Kendall for over a year as a neighbor and have found him a good straight-forward man in his dealings, ambitious & progressive in his business.

Yours Truly

Jas W Phillips

Pa Nov 10th 6

Prof. Henry S. Jacoby
47 Reservoir Ave. Ithaca, N. York

Dear Sir:-

I have your letter of the 7th and in reply, would state in relation to the retractile draw on line of Passaic Ave. over the Schuylkill River, that there are no funds available to construct the bridge and that there is a possibility that a design other than a retractile type may be adopted.

I would state that the design we have, contemplates rolling back along its own longitudinal axis and consists of two lines of trusses 40'-0" c. to c. with long arm 220'-0" and a short arm 150'-0", giving a clear waterway of 200'-0" when open. The drawings are worked up only in a general way.

As no appropriation has been made by Councils and there are doubts of it for some time, I think it would not be advisable to announce it in text book.

We are designing steel-concrete plate girder bridges and will mail you prints showing the construction when drawings are completed. The question of protection from locomotive fumes and blast is a serious question where bridges span railroads, and as lumber of good quality is becoming scarce, we are compelled to resort to some other method of protecting the steel work of the superstructure. The entire steel super-

Pa. Nov 10th 6

Prof. Henry S. Jacoby
#7 Reservoir Ave. Ithaca, N. York

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structure is encased in concrete and jack arches are constructed between the stringers in lieu of buckled plates.

Trusting the information will be of some service to you in your revision of the subject of bridges and that I may be of some service to you in the near future on this or any other subject

I remain

Yours Truly

Jas W Phillips

Chief Draughtsman

Bridge Dep't.

Oak Lane Pa. Oct 6 1905

Mr E. E. Hanscom,
1311 Market Street,
Phila, Pa.

Dear Sir;

In reply to your letter of Oct 5th I would state that the cider will not be made before the first week in November and can be shipped to you the same day it is made, It should be at your disposal by the time it is 2 days old.

It will be made from sound matured Russet apples and barreled immediately as it comes from the press.

The price I quoted to Mr Moyer was 16 cts per gallon f. o. b Cars Trenton N. J. via Phila & Reading Ry.

The product comes from Princeton N J and from one of the finest selected orchards in that vicinity as it will be strictly pure.

Trusting I will receive your order for 3 barrels (about 100 gals per bbl)

I remain

Yours Truly

James W Phillips

Bridge Div. Bureau of Surveys, Dec. 8. 1904

Requisition for supplies –

✓ 3 doz. E. Faber's, Pencil point protectors with rubber
✓ 3 " " " Ruby rubbers #112
✓ 2 " A. W. Faber's Pencil form Ink erasers
✓ 3 — 50 yd. Rolls of Tracing Cloth 30" wide as per sample

Winsor & Newtons colors
✓ 4. pans Vermillion
✓ 4. " Paine's grey
✓ 2. " Indian Red
✓ 2. " Yellow Ochre
✓ 2. " New Blue
✓ 2. " Emerald green
✓ ~~6. small tubes Chinese White~~

Eugene Dietzgen Co's catalogue p. 134
✓ 4. No 2. Camels hair Brushes in quills
✓ 4. " 4. " " " " "
✓ 4. " 8. " " " " "

The following Printer's supplies are from Golding & Co's catalogue

✓ 1 Font 8 Point Gothic (20 A) (40 a) No 4
✓ 3 " 8 " " L.C. No 4
✓ 1 " 8 " Spaces & Quads
✓ 1 " 12 " lining gothic No. 54. 20 A. 30 a.
✓ 5 lbs. 3 " labor saving leads
✓ 5 " 6 " " " "
✓ 2 yds 2 line furniture
✓ 4 " 5 " "
~~2 — 1/4 tubes Printing ink~~
2 - 1/4 lb tubes Printers Ink

May 28th

Mr James McCain
American Insurance Bldg
Newark N.J.

Dear Sir;
Enclosed please find money order for Sixty dollars and sixty-two cents ($60.$\frac{62}{100}$) for premium on policy No 140770

Yours Truly

James W. Phillips

Room 532 City Hall

Residence
Oak Lane
Phila Pa

Mr James McCain
American Insurance Bldg
70 Park Place
Newark N.J.

Feb 25th 1

Preliminary Report
Inspection of Bridges.

Mr Joseph H Coffode
Supt of Bridges
Bureau of Highways

Dear Sir;
I hereby submit to you my preliminary report on the inspection of bridges, as far as the work has progressed to date
Owing to the extreme severe cold weather for the past two weeks the work has not progressed very rapidly
On Feb 8th and 9th with your assistance I inspected the following bridges;
Green Lane over the Schuylkill River
City Avenue " " "
Falls Bridge " " "
Girard Avenue " " "
Calumet Street " Germantown Br P&R Ry
Ridge Avenue " Wissahickon Creek
And a partial inspection of Fairmount Bridge

#2

Green Lane

The general condition of this bridge is good. I desire to call your attention to the condition of the upstream end of the west river pier. This portion of the pier is damaged, as cracks have occurred on the faces, owing to the high water at the time and since the inspection I have not been able to determine to what extent the damage is, and I deemed it advisable to make a further inspection of the foundations when the water subsides, to determine the extent of the repairs necessary.

City Avenue

The entire iron superstructure of this bridge is in need of painting. The outlets to the drains on the decks have no conductors, and the water discharges on to the metal work below, and has caused the rusting. The outlets to the drains should extend down so as to discharge the water below the bottom chords of the metal work.

#3

In very many points the hand rail of the railings, is badly corroded and needs renewing. This amounts to about 50 per cent of the whole railing
The rollers shoes of the west pier span have closed up against the curtain wall of the pier and does not allow for expansion. The curtain wall at these shoes should be chipped sufficiently to give a clearance of at least 3 inches between the shoes and the wall.
The lattice girder span over the tracks of the P & R Ry have a trough section on their bottom chords, where no provision for drainage has been made
Sufficient holes should be provided for drainage at these points
Falls Bridge
The railings on the approaches to the bridge are in need of paint.
The bridge proper is in an excellent condition.

#4

Grand Avenue

Upon a close inspection of the metal flooring of this bridge it was found that the portion of the metal floor where no leakage occured was in a good condition, and the leakage occured along the curbs and in the centre of the roadway where the trolley or electric light poles occur.

The leakage at the curbs and on the sidewalks is due to the numerous joints between the granite gutter, granite curbs and white marble slabs on the sidewalks, together with the cracks in the asphalt wearing surface of the sidewalks. The amount of corrosion due to the water at these joints on the top surface of the floor plates was not determined, as it necessitated the removal of the paving, which I deemed unnecessary at this time.

The leakage can be entirely eliminated at these points by replacing the granite gutters with asphalt and the granite curb, marble slabs and asphalt wearing on the sidewalks by granolithic

#5

Drainage outlets should be provided at intermediate points on the decks of the bridge, whereas at present there are only outlets at the extreme end to take the water from the entire area of 860 by 100 feet.
Many of the bottom end shafts of the trusses have buckled, which is due in all probability to the action of expansion and in three cases the cast iron flanges to the casting at the foot of the end posts have been broken off.
The rollers are very small for the length of the span and they do not act, and are not as sensitive to expansion and contraction as larger ones would be.
The shafts that have buckled are eye bars 7"x 7/8" and 5"x 7/8" latticed with 2"x 1/2" flats.
These bars should be straightened and reinforced by 3"x 3 1/2"x 7/16" angles. One on each bar.
The cast iron ornamental washers at the intersections of the diagonals members have caused corrosion in the diagonals.
These should be removed, in order to top

the concision.
Many sections of the cast iron vertical belt courses of the ornimental work are in dangerous condition, and should be either removed or securely fastened to the iron floorbeams.
The Cap courses on the piers should be thoroughly grouted and pointed at all joints to prevent the water finding its way down to the body of the piers and doing further damage.
Calumet Street
The two lines of main girders of this bridge are not braced their entire length, in order to give any lateral stiffness to their top flanges or prevent them from collapsing under a heavy load.
I would recommend their top flanges be braced and a transverse steel beam or channel of the proper section be thoroughly connected to upright stiffeners at 5 different points in their entire length.
The rivit heads produced in the bottom

47

flanges by 100 lbs per sq foot is high for iron and heavier loads than that should be prohibited on the bridge

Ridge Avenue

The stone arch is in an excellent condition

Fairmount Bridge.

A partial inspection has been made on the portion of the river span, and I will continue this tomorrow.

The estimated cost of the several items cited of the above bridges will follow in a subsequent report

Respectfully submitted

James W Phillips

Subject—
Scales for the Universal Drafting Machine

Phila., Pa., Mar., 7th. 1904.

Mr Geo E Dakeman,
Pur Asst Engr,

Dear Sir,

The following is a list of scales that are wanted for the Drafting Machine;

18 inch duodecimal 3", 1½", 1", ½", ¾", ⅜", ¼", ⅛"
12 " " " " " " " " " "

The machine when it was sent here did not have the above scales, as those that came with it were all decimals scales.

Yours Truly

Jas W Phillips